Chapter Fifty-Nine

LANDSCAPE DESIGN AND EROSION CONTROL

BUREAU OF DESIGN AND ENVIRONMENT MANUAL

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CHAPTER FIFTY-NINE
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59-1 OBJECTIVES

59-1.01 General

The Illinois Department of Transportation is responsible for transportation facilities that occupy considerable land area throughout the State of Illinois. These facilities are developed to be operationally sensitive and a positive economic asset to the State of Illinois through a balanced blend of environmental, economic, aesthetic, and engineering values. This Chapter provides guidance on the implementation of visual and environmentally based aesthetic components of transportation. It also includes procedures for the establishment of components of the physical landscape.

59-1.02 Effective Design Objectives

All design elements and components must be compatible with each other and with the environment into which they are to be introduced. This objective often necessitates the use of materials native to the surroundings. Give consideration to the wide range vegetation zones in Illinois and to the various vegetation types present in the project area when selecting materials.

The objectives of effective landscape design include the following:

- identify social, economic, aesthetic, and environmental effects early enough to permit analysis and consideration while alternatives are being formulated (see Part III, Environmental Procedures);

- involve other agencies and the public in the planning and design decision process early enough to allow their ideas to influence technical studies and final decisions (see Chapter 19);

- use all practical means to restore and enhance the quality of the environment;

- minimize required maintenance activities after construction (see the *Bureau of Operations' Maintenance Policy Manual*); and

- bring together all aspects of the project, including planning, design, construction, and maintenance.

59-2 AUTHORITATIVE BASIS FOR LANDSCAPE DESIGN

59-2.01 Federal Statutes, Regulations, and Policies

Numerous Federal regulations establish the basis for this chapter including:

- United States Code Title 23: Highways: Section 319 Landscaping and Scenic Enhancement;
- 23 CFR 752 Landscape and Roadside Development;
- 23 CFR 635 Subpart E Concerning Aesthetics of Highways;
- *National Environmental Policy Act*;
- *1965 Highway Beautification Act*;
- *1973 Policy on Operation Wildflower*;
- *The Federal Scenic Byways Legislation*; and
- *The Federal Executive Order on Landscaping*, April 1994.

Use the AASHTO *Guide for Transportation Landscape and Environmental Design* as the general guideline to plan, design, and manage Illinois' roadside landscapes.

59-2.02 Illinois Statutes and Directives

A number of Illinois statutes and directives also establish basis including:

- HR 271;
- PA 86-779;
- Departmental Policy D&E-18, Preservation and Replacement of Trees;
- IDNR Cooperative Agreement on Plantings;
- *Bureau of Operations Maintenance Policy Manual*;
- the *Corridors for Tomorrow* program;
- the *State Endangered Species Act*; and
- the *State Interagency Wetlands Policy Act*.

59-3 LANDSCAPE DESIGN PRINCIPLES

59-3.01 General

The establishment of design principles for environmentally based planning, design, construction, and management of the roadside landscape in Illinois is essential.

59-3.02 Principles

The following controlling principles are based upon the conservation of natural resources; creating a facility that is compatible with its surroundings; minimizing future management efforts and expenditures; and producing a high quality, environmentally responsible finished product:

1. Environmental Impact. Where practical, avoid adverse or disruptive impacts to landscape and environmental features on or adjacent to the right-of-way. Where total avoidance of adverse or disruptive impacts is not practical, undertake all reasonable measures to reduce and minimize impacts to these features. If damage or disruption is unavoidable, undertake all reasonable measures to offset damages through mitigation in the project area or other designated areas. Note that the designer cannot recreate or restore natural systems but can utilize native plant materials to represent some of the appearances and functions of the impacted feature (see Part III, Environmental Procedures).

2. Environmentally Sensitive Areas. Consider environmentally sensitive areas and those harboring endangered species to be a controlling factor in all designs.

3. Use of Indigenous Plants. Emphasize the use of plants native to and grown in Illinois which are appropriate to the site, its planned use, and its future management.

4. Site Compatibility. Design a specific landscape effect that is compatible with the site.

5. Future Management Considerations. Consider the future management plan for the roadside area to be a controlling factor in the planning and design of that area.

6. Sustainable Roadside Environment. Strive to produce a sustainable roadside environment.

7. Visual Quality. Visual appearance and visual unity of the facilities are important components. Recognize that visual quality must be a component in almost all design development and that numerous factors influence the final appearance of the finished project. Durability and appearance are the two items most noticed and commented upon by the traveling public.

59-3.03 Application of Principles

Apply landscape and environmentally based design principles to the full range of highway types, from multi-lane freeways to the rehabilitation and improvement of existing local arterials and rural collector roads. They also apply to all highway components and features including:

- the roadway (i.e., the travel surface itself);
- the roadside (i.e., the remainder of the right of way including any existing natural vegetation and/or plantings);
- ancillary structures (e.g., bridges, culverts, retaining walls); and
- highway appurtenances (e.g., fences, signs, lights, traffic barriers).

The principles also apply to other types of transportation facilities constructed by the Department including public transit, railroad terminals, airports, ferry terminals, and port facilities.

The extent of the application of these principles will depend on the type of project, the environmental resources affected, and the public entities involved.

59-4 LANDSCAPE DESIGN PROCESS

59-4.01 Determine Management Level

Landscape and environmentally based design solutions are initiated in the planning and location phase. It is important, however, that the planned level of management extend into the design, construction, operation, and maintenance of transportation facilities. This is underscored by the likelihood that a large share of future transportation demands will have to be accommodated by upgrading existing facilities while recognizing their management will continue to be limited.

59-4.02 Phase I

During the planning and location phase, apply the landscape and environmentally based design principles to assess environmental effects and identify measures to mitigate adverse impacts. Use the principles to help identify landscape features that can be incorporated into project planning and to influence development of alternatives to the proposed action and any environmental commitment.

59-4.03 Phase II

In the design phase, focus on how each of the principles apply to a particular project, what commitments have been made, and how to incorporate the principles into design plans for such project features as landscaping, environmental impact mitigation measures, support facilities, and associated structures.

59-4.04 Project Construction

The construction phase ensures that mitigation measures committed to in the design and planning phases are carried out and conditions discovered in the field receive consideration.

59-4.05 Operation and Maintenance

Finally, the incorporation of landscape and environmentally based design principles into the operation and maintenance of transportation facilities can help to ensure the continued effectiveness of project mitigation measures.

59-5 RESPONSIBILITY FOR PREPARATION OF DESIGN

59-5.01 General

It is the designer's responsibility to be aware of any aspect of the design which would adversely affect the roadside and to modify such design elements, where necessary, to achieve a harmonious design that meets the criteria for the project. The designer also is responsible for notifying other bureaus of potential impacts on their respective operations.

59-5.02 District Landscape Architects

The Landscape Architect in the Bureau of Operations provides the required expertise in landscaping aesthetics, material selection, and visual quality. The Landscape Architect advises the designer and reviews design criteria and proposals.

59-5.03 District Environmental Unit

The district Environmental Unit identifies those aspects requiring the input of the Landscape Architect in Phase I of the project including commitments regarding wetland mitigation, erosion control, endangered species habitat protection and restoration, and tree replacement or removal. This Unit also identifies the impact of the visual component of noise mitigation structures and notes critical areas adjacent to the project needing protection.

59-5.04 BDE Environmental Section

The Environmental Section provides expertise and policy directives in environmentally based landscape matters. The BDE Environmental Section also reviews design criteria and proposals to ensure conformance with environmental regulations and commitments.

59-6 DESIGN FACTORS

59-6.01 General

Design factors are intended as a guide for the designer to use in developing a solution for a particular project condition. Determine the appropriateness of the design as it applies to given features of the highway environment. Not all factors will apply to most projects, nor will all project situations be covered by those described in this Section.

59-6.02 Coordination of the Design Process

Use the following guidelines to coordinate the design process:

1. Coordination Within the Department. During the design process, coordination of many disciplines (e.g., engineering, landscape architecture, biology, hydrology) is needed to achieve the proper environmentally based design. This is true not only for large and complex projects but also for small and simple projects. Obtain all available inputs to ensure a coordinated environmentally based design.

2. Coordination with Outside Regulatory Agencies. Where transportation projects involve wetlands, endangered species, Illinois natural areas, nature preserves, historic sites, and culturally sensitive areas or where the planned facility is adjacent to public resources such as streams or forests, the design aspects of the improvement will be coordinated by the Central Office or the district depending upon the project phase.

3. Coordination with Local Jurisdictions and the General Public. Coordination is best accomplished through the environmental review and public involvement process. The designer is responsible for coordinating with local jurisdictions and abutting landowners adjacent to or affected by the project. Consider the potential impacts to any local management or long range plans. Ensure that aspects of the project are not adverse to broad public values. Early coordination with local jurisdictions and with the general public may provide valuable input to ensure the success of an acceptable design. Coordination at local level includes municipalities, park and forest preserve districts, counties, chambers of commerce, residential and commercial developments, fire and other special districts. Coordination at the general public level may include garden clubs, beautification agencies, and other general public groups with valuable input.

59-6.03 Protection of Existing Features

Certain existing landscape features, whether manmade or natural, should be protected through a process of identification; enhancement, restoration, or preservation; and avoidance or incorporation into the design of the highway improvement. Consider the following when determining the need for protecting existing features:

1. Review Previous Commitments. Review commitments in environmental documents, tree surveys, wetland reports, public hearing records, and other project documents for those requiring protection during project development and implementation.

2. Statute Protection. Determine which features of the project area are protected by statute. These may include wetlands, endangered species, nature preserves, natural areas, and cultural sites.

3. Cultural Environment. Determine the project's setting or cultural environment. Is the project rural, urban, or in a transitional area? The design should be influenced by the cultural and physical environment adjacent to it and existing features should be protected when possible.

A variety of techniques may be employed to protect identified resources, including both temporary and permanent measures as appropriate. Consider the following guidelines:

1. Temporary Fencing. Use temporary fencing to protect special waste areas, existing vegetation to remain in critical erosion prone areas such as steep slopes or concentrated flow areas, and areas where it is necessary to prevent stockpiling or construction traffic access. Natural resources (e.g., prairies, woodlands, wetlands) should be protected. Where drainage is flowing from the construction area to these valuable resources, it is usually better to specify perimeter erosion barrier instead of temporary fencing. The designer should clearly label on the plans the limits of construction and what is to be protected by the temporary fencing.

2. Tree Trunk Protection. Specify tree trunk protection to prevent damage by construction equipment to existing trees located within or along the limits of the construction area.

3. Pruning for Safety and Equipment Clearance. Show pruning of overhanging branches for safety and equipment clearance purposes on the plans.

59-6.04 Grading and Alignment

That portion of the design process concerning alignment and grading offers the best opportunity to fit the highway into the landscape, thereby avoiding unnecessary environmental impacts and yielding a functional and aesthetically pleasing form. The basic guideline for grading and alignment is the AASHTO *Guide for Transportation Landscape and Environmental Design* and Chapter 33. In addition, consider the following guidelines:

1. Environmental Commitments. During Phase I engineering, ensure that all environmental commitments are reviewed to appropriately influence alignment and grading decisions. These commitments also will serve as controls during Phase II plan preparation.

2. Surrounding Landscape. Give consideration to the surrounding landscape. Blend the alignment and grading to fit the existing topography with minimal visual or physical disruption.

3. Clearing and Construction Limits. Carefully plan the establishment of clearing and construction limits. Consider both existing landscape features and critical areas. Clearing and tree removal must be specified in accordance with Departmental Policy D&E-18.

4. Plant Survival. Consider the survival potential of existing plantings to be preserved and proposed plantings at the time that grading decisions are made. This is especially critical in confined areas where landscape features such as screening are proposed. Plant material to remain within the project limits should be properly cared for so that it is alive and in good condition when the project is complete. Consider the following guidelines:

   a. Root Pruning. Specify root pruning where trenching or excavation is within the root zone of adjacent trees or shrubs to remain in place to prevent ripping up roots.

   b. Fertilizer Nutrients. Specify fertilizer nutrients for trees and shrubs that will be disturbed by construction but will remain-in-place.

   c. Supplemental Watering. Specify supplemental watering for trees and shrubs that will be disturbed by construction but will remain-in-place. Watering should begin immediately after root pruning, top pruning, or other construction disturbance.

   d. Tree Pruning. Specify tree pruning where an entire tree needs to be pruned, to correct structural problems, or improve the overall appearance.

59-6.05 Erosion Control

See Section 59-8 for information on Department policy and procedures for erosion and sediment control.

59-6.06 Drainage

Design the drainage of the highway system as part of, and not separate from, the natural hydrology of the environment. Consider the following factors during design:

- the environmental impacts of drainage;

- storm water management;

- retention basin design;

- how the drainage way is to be designed or altered from its original pattern;

- the affect that the channel lining will have on values such as wildlife, aquatic life, sediment filtration, and water quality; and

- the impact that water retention and/or soil saturation will have on existing or proposed plant material.

59-6.07 Visual Quality

A project's visual quality is ensured by encouraging a positive visual change that will improve or enhance the surrounding landscape. Define the visual environment by identifying key views, analyzing resources, depicting the project's proposed appearance, and assessing its visual impacts. Manmade features have been integrated successfully into a large portion of Illinois' natural landscape. To better provide for visual quality in a project, evaluate the project's relationship with the following:

- natural landscape elements;
- topographical and physical characteristics;
- ecological influences;
- recreational sites;
- residential areas and their character;
- historical features;
- visual values;
- existing land uses (e.g., industrial, junkyards); and
- existing and proposed project profile.

Review these elements to ensure that visual quality is adequately integrated into the project.

59-6.08 Safety

Safety should be the highest functional goal of every design, and all landscape and environmentally based design principles must be compatible with such criteria. During design, consider the following:

- the location, size, and height of plantings in relation to sight distance, drainage, and clear zones;

- traffic-calming designs in urban areas; and

- pedestrian safety in areas such as rest areas, transit stations, and bikeways.

59-6.09 Scenic Byways, Rest Areas, Special Projects, and Settings

Existing scenic conditions, auxiliary facilities, special roadway designations, roadway destinations, and historical values of the project area are examples of special conditions which may be present and which may impact the design of a project. Many of these conditions are held in high regard by the public, and their sensitive treatment is essential to a successful project. Ensure that design decisions are compatible with such special conditions. It may be necessary to provide a higher type of design than is normally required.

59-6.09(a) Scenic Quality Preservation

The project area may be a designated scenic byway or may possess an outstanding scenic quality which must be preserved as part of the project. This may require special limited grading, aesthetic treatments of highway appurtenances, preservation or enhancement of adjacent features, or other actions to preserve unique aspects of the area. Such cases normally require special attention and unique designs to improve the quality and safety of the roadway.

59-6.09(b) Auxiliary Facilities

Auxiliary facilities may be required or desirable as a part of the project (e.g., rest areas, scenic overlooks, roadside tables, scenic vistas). The planning and design of such facilities should be an integral part of the roadway design. Give special attention to site amenities, aesthetics, and environmental values as well as safety and future maintenance.

59-6.09(c) Special Designations

A project area may carry a special designation which sets the route apart as a special experience for the traveler. Examples of these are the Great River Road, Historic US 66, the Lake Michigan Circle Tour, and many similar corridors. It is important to become familiar with the meaning and the special features associated with such designations so that any necessary supportive enhancements can be developed (e.g., opening vistas of the Mississippi River along the Great River Road, providing informational signing along Historic US 66).

59-6.09(d) Roadway Destinations

Certain roadway segments may serve primarily as access to a destination such as a state park or historic site. Designers of such segments must be aware of the significance of the site and its surroundings and ensure that the project design is compatible with its destination.

59-6.09(e) Historical Influences

Historical influences may affect the project as a nearby destination, as an adjacent feature, or, in some cases, as a part of the roadway or its appurtenances. Pay particular attention to such influences and prepare the project design to be compatible or harmonize with them. Historical markers, structures, districts, and bridges all may influence the design of a project. Required avoidance of or mitigation of impacts to historical resources usually is identified in early project coordination, but the designer should be alert for any unidentified items. Special consideration may need to be given to landscaping within designated National Register Historic Districts.

59-6.09(f) Special Designs

Various elements of the design may need to be modified from the standard treatment or designed to a higher visual quality standard than the ordinary roadway elements to be compatible with the above special circumstances. Give special consideration to the design of features such as bridges, signing, retaining walls, tree protection, colors and textures of appurtenances, and similar items. Design these treatments to be compatible with their surroundings and with the features that make the segment unique. If questions arise regarding a proper design approach, contact in-house specialists, such as the district landscape architect, or outside consultants for ideas and suggestions.

59-7 DESIGN ELEMENTS

59-7.01 Landscape Plantings General Information

Highway landscape plantings are the living component of the highway design and, through the use of native and non-native materials, provide the means to fully integrate the highway with the surrounding environment. Landscape plantings will serve as functional elements, such as erosion control, screening, sound abatement, snow control, etc., in the highway environment.

59-7.01(a) Responsibility

The district Roadside Development Unit (Landscape Architect) has the primary responsibility for determining the plant selection on a site-specific basis for a design project. The plants selected generally should be characteristic, native, or indigenous to the specific locality. The district Landscape Architect keeps a current preferred plant list for his/her respective district. Consider the following guidelines:

1. Native Plants. Native plants are effective in perpetuating a self-sustaining roadside landscape. They are adapted to regional environmental conditions and can survive extreme temperatures, wind, and rainfall without additional irrigation or fertilizer.

2. Non-Native Plants. Non-native plants may be selected to achieve special effects (e.g., color, texture, growth habit) for emphasis. For example, non-native plants could be used in urban areas to accentuate an artificial manmade environment. Another example would be to use non-native material to screen the unsightly view of a junkyard.

3. Plant Maintenance. Maintenance is a major consideration in landscape plant selection. Strive to choose those plants that require a minimum of maintenance.

59-7.01(b) Hardiness

Select plants for a particular section of roadway based on their climatic and soil requirements. In Illinois, climatic conditions and soil types are favorable to both southern and northern plant groups. Conduct a study of soils, climate, and existing plant growth in the area when planning each planting project. Plant hardiness zones will be as stated in the *Standard Specifications*. Use the USDA Plant Hardiness Zone Map, latest edition, when selecting plant material for any project.

59-7.01(c) Size

The size at which a plant matures will determine the number of plants that will be required in a group planting. The highway speed determines the amount of time a motorist views the

planting. Consequently, on higher speed highways, utilize the large group concept of landscaping in lieu of the individual plant concept. Consider the following guidelines:

1. Younger Plants. Younger plants generally establish themselves faster than older plants. As a general practice, specify the smallest size of plants that is consistent with the requirements of the environment.

2. "Balled and Burlapped" Planting. Specify all deciduous trees larger than 1.5 in (40 mm) in diameter or 5 ft (1.5 m) in height as "balled and burlapped" at the time of planting. Also, specify this method of planting for plants that, according to good horticultural practice, require a ball of earth. It is acceptable to specify container-grown material in lieu of "balled or burlapped" plants as an alternative. The relationship of the plant size to the soil ball size or the container size will be as stated in the *Standard Specifications*.

3. Perennial Plants. Perennial plants can be planted as bulbs, tubers, or container plants. Bulbs and tubers should be of a size large enough to produce a healthy plant and to flower the first year. Container plants should be well rooted in the container. A quart sized container is usually the smallest size that should be planted on highway projects.

4. Prairie Forbes and Grasses. Prairie forbes and prairie grasses can be planted as root plugs or as seed. The minimum size plug should be 1.25 in (30 mm) in diameter by 4.25 in (110 mm) deep.

59-7.01(d) When to Plant

Plantings are placed as follows:

- when required by the Phase I report;
- when planting can fulfill one of the "Functions of Planting" as outlined in this chapter;
- when required by law or Department policy;
- when requested by local residents or communities;
- at any location where the local community will assume plant maintenance; and
- where right-of-way agreements indicate that trees will be planted.

59-7.01(e) Site Analysis

The design process begins with the site analysis, which includes the following items:

1. Determine final contours and cross sections including:

- steep slopes,
- flat areas, and
- drainage features.

2. Identify adjoining land usage as follows to better blend landscaping with the pre-existing environment:

   - urban,
   - rural,
   - industrial,
   - scenic vistas,
   - agricultural, and
   - natural forested areas.

3. Consult the USDA Hardiness Zone Maps and analyze native plant communities and climate for the area including:

   - local plant types,
   - hardiness zone, and
   - exposure.

4. Analyze landscape position as follows:

   - upland,
   - lowland,
   - wetland, and
   - flood plain.

   This is important because plants are site specific to their environment.

5. Analyze soil types and structures including the following factors:

   - soil types,
   - soil textures,
   - available moisture,
   - drainage,
   - fertility, and
   - pH.

6. Ensure plantings are compatible with roadside safety requirements by determining the following:

- clear zones, and
- sight distances.

7. Because the planned roadside maintenance often dictates the type of planting, determine future maintenance including the following factors:

   - scope,
   - responsibility,
   - future cost,
   - mowing requirements,
   - burn management requirements,
   - chemical weed control, and
   - fertilization.

8. Identify existing features such as the following:

   - drainage structures,
   - signage and lighting,
   - walls,
   - roadway and shoulders,
   - structures,
   - curbs and medians,
   - interchanges and intersections,
   - alleys,
   - driveways,
   - fire hydrants,
   - utility lines,
   - railroad crossings,
   - buildings,
   - traffic signs and signals, and
   - underground utilities.

   This is important because these existing features can influence the final design.

59-7.01(f) Function of Plantings

The functions of plantings are as follows:

1. Aesthetics. Planting is one method used to improve the visual quality of the highway system.

2. Screening. Screening undesirable views seen from and toward the highway can be performed with plants.

3. Delineation. Plants may be used to delineate changes in highway alignment. Plants on the outside of curves, at "T" intersections, and at overpasses may aid in directing the motorist. Plants also may be used to frame or form a background for directional signs.

4. Erosion Control. Plantings may be used to prevent erosion and enhance soil stability.

5. Control of Snow. Living snow fences can reduce maintenance costs, provide increased driver safety, and greatly enhance the appearance of the roadside.

6. Preventing Headlight Glare. Planting can be very effective in screening headlight glare from oncoming vehicles.

7. Environmental Mitigation. Planting may be used for various types of mitigation including various types of buffers, sound barriers, tree replacement requirements, wetland replacement, and providing wildlife habitat.

8. Pollution Control. Planting may be used to attenuate air pollution, dust, and auto emissions.

9. Psychological Considerations. Planting may help to alleviate driver fatigue by changing the driving experience and making it more interesting.

10. Adjacent Landscape Enhancement. Plantings can be used to enhance adjacent landscapes for the better enjoyment of the motorists.

11. Noise Abatement. Plantings may be used to reduce highway noise to adjoining properties.

Plant varieties also should be selected for their desirable growth habits, insect and disease resistance, and proven desirable features for highway use.

59-7.01(g) Considerations for Plantings

The functions of plantings are used as the basis for planting shade trees, intermediate trees, shrubs, evergreens, vines, ground covers, and seedlings. Landscape plantings are used to mitigate and replace trees that were removed through highway construction and mitigation for wetland replacement. Landscape plantings are covered in the *Standard Specifications*. Consider the following:

1. Fertilizing and Mulching. For survivability and lack of future maintenance, give consideration to fertilizing and mulching all plantings.

2. Roadside Safety. Do not locate woody plants with diameters at maturity greater than 4 in (100 mm) in the clear zone, as defined for new construction. Also, such plants

normally should not be planted on the foreslope or in ditches even if outside the clear zone.

3. Existing Soil. Where practical, use the existing soil in the planting operation. In cases where highway construction has made the condition of the existing soil unsuitable, consider the use of soil amendments or new topsoil. When soil conditions require topsoil placement to ensure adequate growth, specify the following depth of topsoil for the appropriate areas:

   - 8 in (200 mm) where extensive plantings of wood or perennial plants are proposed; and

   - 24 in (600 mm) for plantings in landscaped medians;

4. Impacts of Salt. Due to the adverse effect of salt upon plants, give special consideration to the type and location of plants and their proximity to the roadway in those areas of the State where there is extensive snow and ice control.

5. Agricultural Areas. Do not plant large trees or evergreens on the right-of-way where there is adjacent agricultural land use due to their shading characteristics and their impact on farm machinery mobility.

6. Signage. Do not place plants in a location that will block the view of legally placed advertising signs.

7. Growth Balance. Every large scale planting operation should include a small percentage of relatively fast growing short lived trees that will, in a short period of time, provide the overall landscape with some big trees while the slower growing trees mature. This practice will benefit the current motorist as well as the driver of the future.

8. Blending. Where adjacent land use is wooded, (e.g., parks, forest preserves), use landscape plantings to blend into the existing wooded area and erase the effects of highway construction.

9. Screening. Landscape plantings are used to screen adjacent properties that have undesirable land usage; to reduce highway noise, dust, etc., reaching adjacent properties; and/or to screen the highway from a residential area or park.

10. Sight Distance. When planting in urban areas, consider potential sight distance problems and the problems of obstructing traffic signals, signs, lighting, etc.

11. Snow Drifting. Do not plant dense continuous hedges within 40 ft (12 m) of the edge of pavement where they may cause snow to drift onto the pavement.

12. Permit Planting. All plants placed by permit should be maintained by the person or agency requesting the permit. Removal and/or replacement will be the responsibility of the person requesting the permit.

13. Harmful Plants. Do not plant poisonous or toxic plants in urban areas. Likewise, plants with thorns are suitable only to rural areas.

59-7.02 Classification

Consider the following groups for planting:

1. Shade Trees. A single-stem, high-headed, deciduous plant that generally grows to a height in excess of 30 ft (9 m).

2. Intermediate Trees. Generally, a multi-stem, deciduous, low, round-headed plant that matures at 30 ft (9 m) or less in height.

3. Shrubs. Low-growing multiple stemmed plants that are either deciduous or evergreen.

4. Evergreen Trees. Tall-growing evergreen plants.

5. Ground Cover and Vines. A colony forming plant less than 1.5 ft (0.5 m) high that has the ability to spread and root itself.

6. Seedlings. Small shade trees, intermediate trees, shrubs, and evergreens that are usually less than 2 years old.

7. Shelterbelts. Also referred to as “living snow fences,” shelterbelts are multiple rows of trees or shrubs planted to provide protection from wind driven snow. There are many advantages to shelterbelts, as compared to snow fences, including roadside beautification, wildlife benefits, little or no maintenance after establishment, and long service life. A disadvantage of shelterbelts is that they may require 5 to 10 years from the time of planting to become effective depending upon their size at the time of planting.

59-7.03 Forestation

Departmental Policy D&E-18 provides direction to guide decision making regarding the management of roadside trees in conjunction with the planning, design, and maintenance of facilities on the State highway system. In areas where highway development must unavoidably remove forest, incorporate replanting with native tree species as part of the project.

59-7.03(a) Objective

In determining where such forestation is appropriate, consider whether such forestation would:

- enhance the scenic quality of the highway,
- provide additional habitat for wildlife,
- result in financial savings from reduced maintenance,
- enhance air quality,
- serve as a deterrent to soil erosion,
- not hinder a driver's visibility or otherwise create a traffic hazard,
- allow for natural forest revegetation, and/or
- properly mitigate for environmental impacts.

59-7.03(b) Planning

Consider the following when making decisions on forestation of the project area:

- clear zones,
- blending slope planting with adjacent forested areas,
- revegetating riparian zones around bridges and drainage structures,
- screening undesirable views and objects, and
- framing vistas.

59-7.03(c) Analysis

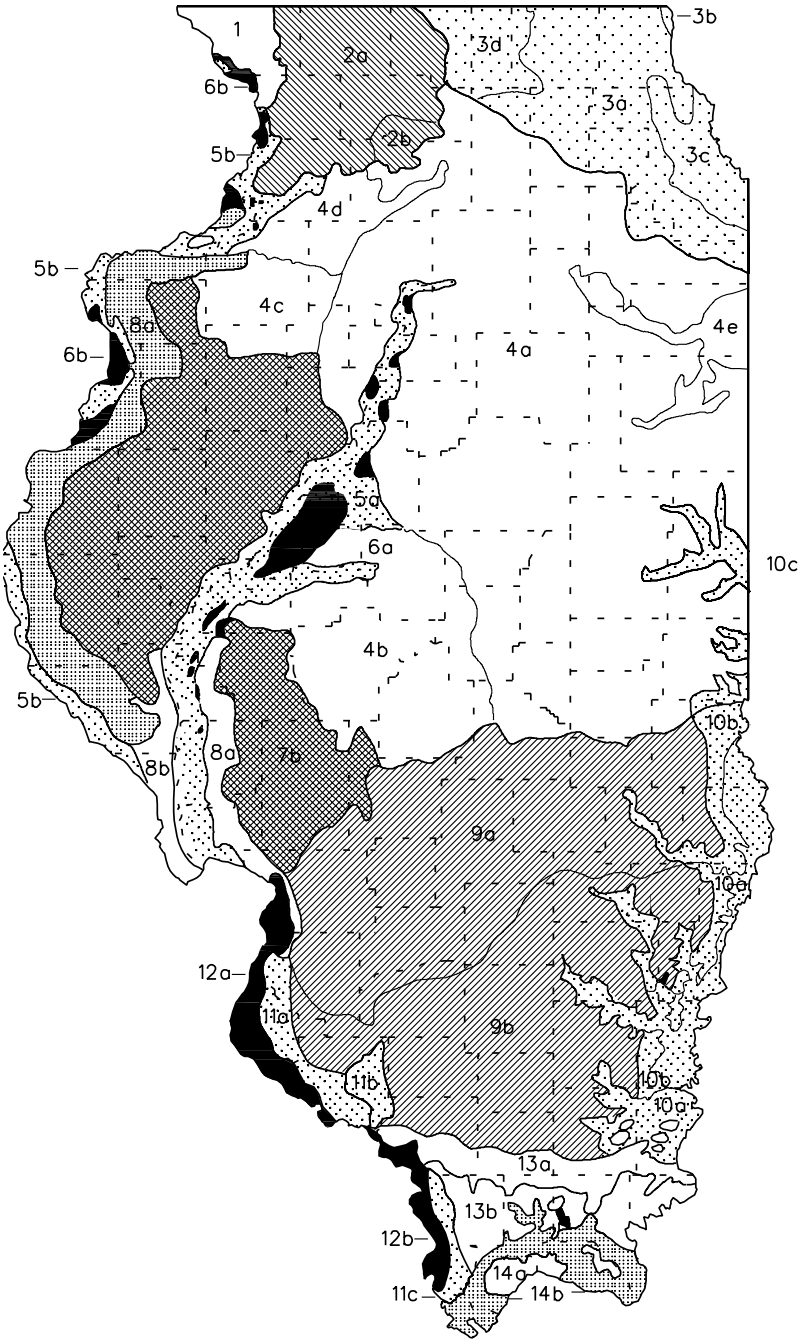
Investigate and determine the proper mixture of plant materials best suited for the project area. Use the following to determine the proper selections:

- native plant communities (see Figure 59-7A);
- landscape type — upland, lowland, bottomland, wetland;
- soil conditions — texture, available moisture, drainage, fertility, pH; and
- climate — hardiness zone, exposure.

59-7.03(d) Design

Utilize the following, along with previously gathered information, to develop the final design for forestation:

- plans and special provisions,
- delineating planting locations,
- plant materials,



1 Wisconsin Driftless Division

2 Rock River Hill Country Division
- a Freeport Section
- b Oregon Section

3 Northeastern Morainal Division
- a Morainal Section
- b Lake Michigan Dunes Section
- c Chicago Lake Plain Section
- d Winnebago Section

4 Grand Prairie Division
- a Grand Prairie Section
- b Springfield Section
- c Western Section
- d Green River Lowland Section
- e Kankakee Sand Area Section

5 Upper Mississippi River and Illinois River Bottomlands Division
- a Illinois River Section
- b Mississippi River Section

6 Illinois River and Mississippi River Sand Areas Division
- a Illinois River Section
- b Mississippi River Section

7 Western Forest-Prairie Division
- a Galesburg Section
- b Carlinville Section

8 Middle Mississippi Border Division
- a Glaciated Section
- b Driftless Section

9 Southern Till Plain Division
- a Effingham Plain Section
- b Mt. Vernon Hill Country Section

10 Wabash Border Division
- a Bottomlands Section
- b Southern Uplands Section
- c Vermillion River Section

11 Ozark Division
- a Northern Section
- b Central Section
- c Southern Section

12 Lower Mississippi River Bottomlands Division
- a Northern Section
- b Southern Section

13 Shawnee Hills Division
- a Greater Shawnee Hills Section
- b Lesser Shawnee Hills Section

14 Coastal Plain Division
- a Cretaceous Hills Section
- b Bottomlands Section

NATURAL DIVISIONS OF ILLINOIS

Figure 59-7A

- soil amendments, and
- plant care.

59-7.04 Turf Grasses

Non-native grass, grains, legumes, and native grasses form the backbone of highway vegetation cover. The large number of species and varieties of vegetative cover may be used for many applications. Consider the following guidelines:

1. Temporary Erosion Control. Use temporary vegetative cover for temporary erosion control at locations where the duration of the turf cover is short term and is expected to prevent loss of soil.

2. Permanent Erosion Control. Permanent vegetative cover is utilized for permanent erosion control in most highway applications. To achieve a cost-effective permanent cover, select a type of turf grass appropriate to the landscape conditions and planned maintenance.

3. Weed Control. Good turf establishment will minimize weed growth, thereby reducing pesticide requirements.

4. Groomed Appearance. Provide a vegetative cover that can be mowed into a park-like appearance. In urban settings, use a lawn-type mixture to blend in with the urban landscape.

5. Wildlife. Provide a vegetative cover that will enhance and encourage wildlife. This is a component of the Department's Corridors for Tomorrow Program and is often a commitment to resource agencies.

6. Diversity. Provide a diverse vegetative cover that will add color, texture, and form to the highway environment. This is important because not only does such diversity provide a visual experience, but also breaks up the monotony of the driving task.

7. Sodding. Seed mixtures are most commonly used; however, some instances may call for the use of sodding to provide for the rapid establishment of turf. Seed mixtures and sodding are covered in the *Standard Specifications*.

8. Applications. The turf grasses specified in the *Standard Specifications* are used for specific applications as follows:

    a. Lawn Mixtures. Lawn mixtures are used in urban settings to create a park-like appearance and require a relatively high degree of maintenance.

b. Salt Tolerant Mixtures. Salt tolerant mixtures are used along road segments where de-icing salts are heavily used.

c. Roadside Mixtures. Roadside mixtures are used in more rural settings where a tougher lower maintenance turf is desired.

d. Slope Mixtures. Slope mixtures are used on slopes usually 1V:3H or greater.

e. Native Grass and Forb (Wildflower) Mixtures. Native grass and forb (wildflower) mixtures can be planted to create specific turf conditions (see Section 59-7.05).

f. Conservation Mixtures. Conservation mixtures are used for wildlife nesting cover. These are usually planted at the request of resource agencies.

g. Temporary Erosion Control Mixtures. Temporary erosion control mixtures are seeded to prevent soil from being displaced on a construction project that will be exposing soil. The mixture is spread over all exposed earth to provide a quick cover of the turf that will interrupt the force of rain on the soil and prevent soil from moving. The temporary erosion seed mixture may need to be spread on construction sites numerous times during construction activities. The temporary erosion control mixture also can be combined with a permanent erosion control mixture to provide a nurse crop while the permanent seed is establishing.

59-7.04(a) Site Analysis

When performing the site analysis, give consideration to the project slopes, proximity of seeding type to the highway, surrounding land uses, and current and future maintenance (e.g., mowing, burning, chemical control, fertilization). Also give consideration to the type of soil and whether or not topsoil will be required. The drainage pattern and how well the soil drains also is important as this can dictate the selection of turf grass mixture.

In addition, consider the ultimate height of the proposed turf. Examine locations where taller grasses or unmowed turf will be established to ensure that sight distance problems at intersections will not be introduced.

59-7.04(b) Seeding

The seeding operation that is conducted in the field actually occurs in a series of steps. The most important aspects of seeding are seed mixture selection, site preparation, and placement of mulch. Consider the following guidelines:

1. Seed Mixture. Select the class of seed mixtures that are appropriate to the specific roadside environment. Consider the following:

a. Class 1 (Lawn Mixture). Use Class 1 seeding in an urban setting.

b. Class 1A (Salt Tolerant Lawn Mixture). Use Class 1A seeding for:

- all urban reconstruction not covered in Class 2A, and/or
- all projects where the entire right-of-way is not torn up and Bluegrass is the primary existing cover.

c. Class 1B (Low Maintenance Lawn Mixture). Use Class 1B in the southern half of the State for urban projects.

d. Class 2 (Roadside Mixture). Class 2 seeding is a hardy roadside turf and should be used where reduced mowing will occur.

e. Class 2A (Salt Tolerant Roadside Mixture). Use Class 2A seeding for:

- new construction or reconstruction projects of limited access routes in locations intended to be mowed by the Department,
- all rural reconstruction projects where the entire right-of-way is to be seeded or any situation where grasses other than Bluegrass are the primary existing cover, and/or
- areas adjacent to roads subject to salt spray and/or disposition.

f. Class 3 (Slope Mixture). Use Class 3 seeding in rural areas for slopes 3V:1H or steeper.

g. Class 4, 4A, 4B, 5, 5A, 5B (Native Grass and Forbes Mixture). See Section 59-7.05 for additional discussion.

h. Class 6 (Conservation Mixture). Class 6 seeding is used for wildlife cover in the east central part of Illinois. Use caution when considering this class with other seeding classes.

i. Class 6A (Salt Tolerant Conservation Mixture). Class 6A seeding is a Class 6 which includes salt tolerant grass.

j. Class 7 (Temporary Turf Cover). Class 7 seeding is used as a temporary cover for areas to be regraded more than a year from the time of seeding. Use Class 7 for winter shut down. Provide temporary mulch or erosion control blanket with Class 7 seeding. Use the Temporary Erosion Control Seeding System weekly for shorter-term temporary cover.

2. Site Preparation. Site preparation may consist of:

- tilling or disking the soil to be seeded;
- spreading of chemical weed control;
- placement of soil amendments (e.g., fertilizer, lime, compost); and/or
- placement of topsoil.

When soil conditions require topsoil placement to ensure adequate growth, specify the following depth of topsoil for the appropriate areas:

- 4 in (100 mm) for use with Seeding Classes 1 and 2 or sodding;

- 12 in (300 mm) in wetland mitigation areas, or what is required by the Corps of Engineers for the specific project; and

- Topsoil is not normally required for seeding Classes 4 and 5. Use compost or coarse sand (usually 2 in (50 mm) depth) to amend the existing soil where necessary.

For those seed mixtures requiring complete seedbed preparation, placement of a fertilizer is usually required. A fertilizer is not required for native grass mixtures (Class 4, 5 and 6) and for temporary turf cover (Class 7). Agricultural ground limestone may be specified to adjust soil pH. Turf requires a pH of 7.0 to germinate.

3. Seeding. Once the site preparation has been completed, the seed mixture is applied. The type of seed mixture will dictate the seeding method to be utilized. Seeding methods are described in the *Standard Specifications*.

4. Mulch Placement. Mulch is placed once the seed mixture has been applied to the site. There are three different mulch methods available. These are described in the *Standard Specifications*. The purpose of mulch is to hold the soil moisture level at the ground surface, prevent displacement of seed, and protect seed from predation. Mulch can be either in the form of straw, stabilized straw, hydraulic mulch, or erosion control blankets. Method 1 should not be used if wind or displacement by traffic is a problem. Method 2, Procedure 1 should not be used on areas subject to pedestrian traffic or where it is impractical to keep asphalt off curbs, sidewalks, guardrail, cars, homes, etc., or over a water course. Do not use Method 3 where the possibility of fire exists. Stabilized mulch and erosion control blankets are appropriate for high traffic volume areas where traffic generated wind might disturb the mulch. Erosion control blankets are also used as a ditch-bottom lining and on slopes where erosion is a potential problem. If erosion control blankets are selected as mulch, determine the appropriate type, bio-degradable or non-bio-degradable, to use. Do not use non-bio-degradable erosion control blankets on turf areas that will be mowed.

Bio-degradable blankets are often made with excelsior, straw, or coconut fibers held together with plastic filament. Bio-degradable blankets can also be considered for use adjacent to shoulders where traffic may blow off mulch (e.g., straw). When used for this purpose, the blanket should extend through ditch line, or 25 ft (7.5 m) from edge of pavement, whichever is greater. Consider non-bio-degradable erosion control blankets for use on steep slopes or in ditches where heavy flow of water is anticipated based on hydraulic analysis. Provide a heavy-duty erosion control blanket or flexible ditch lining in this instance.

59-7.04(c) Selective Mowing Stakes

Consider the following guidelines when specifying selective mowing stakes:

1. Application. Use selective mowing stakes to delineate areas that are not to be mowed (e.g., areas that contain plants or natural features which need to be protected from mower damage, areas of existing vegetation, areas seeded or planted with trees, shrubs, wildflowers, or prairie plants). Another use of staking would be to delineate selecting mowing lines to create an aesthetic or visual effect.

2. Placement. Place selective mowing stakes in such a manner as to delineate the mowing boundaries of the feature to be protected or created. Spacing of the stakes will depend upon the size and shape of the area. Use a minimum spacing of 25 ft (7.5 m). Signs may also be specified to further mark the area.

59-7.04(d) Sodding

Appropriate uses of sodding are as follows:

- urban areas with residential or commercial development (e.g., in front of homes, businesses, parks, adjacent to paved shoulders or edges of paved ditches);
- rest areas;
- in front of maintained parks and cemeteries;
- erosion control in ditch bottoms and around culverts; and
- special areas (e.g., channelized medians, around inlets in grassed areas). Small areas which would normally be seeded should be sodded where a large majority of the remainder of the project (90% +/-) is to be sodded.

Consider the following guidelines when specifying sodding:

1. Salt Tolerant Sod. Specify salt tolerant sod in those areas where large quantities of deicing salt are used by maintenance forces (e.g., highly urbanized areas).

2. Topsoil. Topsoil is usually required.

3. Fertilizer. Fertilizer should be included and incorporated prior to sod installation. Fertilizer requirements are indicated in the *Standard Specifications*.

4. Watering. Specify the number of supplemental waterings. Field adjustments can be made according to season and time of application. Watering rates and requirements are indicated in the *Standard Specifications*.

5. Staking. Specify staking on all slopes of 1V:2H or steeper. Staking requirements are indicated in the *Standard Specifications*.

6. Lime Consider lime application after a soil pH analysis is taken.

Design considerations for placing sod in ditches are as follows:

1. In urban areas, except expressways, place sodding in ditches with grades of 0.75% to 2.5%.

2. Place sodding in ditches 50 ft (15 m) upstream and downstream from the ends of culverts, unless grades or volume of water flow require a paved ditch, aggregate ditch, or riprap.

3. Place sodding on moderately steep slopes and ditch flow lines where appearances dictate except in continuously flowing ditches or wet ditches.

59-7.05 Native Grasses and Forbs (Wildflowers)

Consider the following guidelines for applications involving native grasses and forbs (wildflowers):

1. Native Grasses. There are numerous species of native Illinois grasses. These grasses are commonly referred to as prairie grasses.

2. Forbs (Wildflowers). Forbs, commonly referred to as wildflowers, can be native and or non-native flowering plants. They are used for either visual effect or to mitigate environmental impact.

   Non-native wildflowers are used to add a splash of color to the roadside and are often mixed with native wildflowers to provide blooming while the native wildflowers are being established. Some non-native species commonly planted are:

- Ox-Eyed Daisy,
- Cosmos,
- Poppy, and
- Indian Blanket.

3. Growth Rate. The native grass and native wildflowers are mostly warm season plants that do not begin their growth until warm weather arrives. Most roadside plantings of native grasses and native wildflowers take 3 to 5 years to show results. The native species spend their initial growth establishing an extensive root system once the seeds germinate, thereby resulting in a longer time frame to show results.

4. Applications. Grasses and wildflowers can be used separately or in combination to provide a specific effect or restore a native Illinois landscape. Native roadside plantings offer many benefits to highway managers, motorists, and wildlife. Their thick deep roots anchor the soil and prevent erosion. Native species tolerate a wide range of soil types, climatic conditions, and hydrology making them suitable for most highway conditions. They offer a motorist a rich, aesthetic landscape full of texture and color enhanced by seasonal change. Native-planted roadsides provide habitat for wildlife. The following class of seed mixtures for native grasses and native wildflowers are covered in the *Standard Specifications*:

   - Class 4 (Native Grass);
   - Class 4A (Low-Profile Native Grass);
   - Class 4B (Wetland Grass);
   - Class 5 (Forbs with Annuals);
   - Class 5A (Large Flower Native Forbs (i.e., tall)); and
   - Class 5B (Wetland Forbs).

   Where it is desirable to eliminate most future mowing, native grasses and forbes may be suitable for the following applications:

   - inaccessible areas (e.g., when a creek or similar barrier separates an area from the roadway);
   - in wide right-of-way areas;
   - interchanges;
   - bordering slope walls and retaining walls;
   - between the back of guardrail and top of retaining walls in narrow areas; and
   - outside access control fencing on rural freeways, (except those immediately adjacent to agricultural land, residential areas, or frontage roads).

Discuss the selection and application of native grasses and forbs with the district Landscape Architect.

5. Planting Methods. The method of planting these species ranges from complete seed bed preparation to inter-seeding existing turf. Usually, seed mixtures are selected for planting grasses and forbes; however, plant plugs may be used to achieve faster results. If plugs are selected (also known as perennial plants), consult the *Standard Specifications* for planting times.

59-7.05(a) Planning

Because of the splashes of color added to the highway landscape by wildflowers, place these plantings in areas of high visual impact such as interchanges. Wildflower plantings, although colorful, often have the appearance of unkempt vegetation. Wildflowers, whether native or non-native, require some maintenance, usually in the form of selective mowing or roadside burning to prevent establishment or undesirable vegetation. Consider future maintenance requirements of the roadside when planning the appropriate planting mixtures.

Wildflower plantings can be placed in stand-alone groupings or combined in a plant community with native grasses to restore part of the native landscape. The advantage of utilizing native species is that they are adapted to the Illinois environment and, therefore, do not require fertilizer nutrients or topsoil.

If native grasses are to be mixed with forb plantings, consult the district Landscape Architect for the appropriate mix, because grasses can out-compete forbs. Select grass species that are compatible with forbs. Prairie grasses also may be added to other turf grass mixtures to enhance diversity, erosion control, and aesthetics in the turf area. Consider prairie grasses for use on all new and highway reconstruction projects. These grasses especially can be effective on steep slopes 1V:3H or greater, and where maintenance is limited (i.e., slopes 10 ft (3.0 m) or more in height and 100 ft (30 m) or more in length), due to their deep rooting ability which holds the soil in place. Native grass and forbes mixtures should only be considered in residential areas if a right-of-way fence is present.

Select a location that will maximize the visual impact to the motorist. Examine the highway alignment to determine where to maximize the visual experience with any flowerbeds or grass plantings.

59-7.05(b) Analysis

Consider the following guidelines during the analysis:

1. Visual Analysis. Consider the sight line of the motorist when planning any wildflower or native grass establishment. Such areas include interchange locations, outsides of

curves, gore areas, and back slopes. In urban areas, the view from the surrounding neighborhood as well as the motorist's view must be compatible with existing neighborhood landscapes and coordinated with local municipalities.

2. Landscape Position, Upland, Lowland, Bottomland, and Wetland. Some native grasses and wildflowers are adapted to dry or mesic conditions (prairie) while others require wet or saturated conditions. Consult the district Landscape Architect to determine which species are appropriate for a given set of roadside conditions.

3. Soil Conditions. Determine the type of soil and identify the soil's characteristics. Consult soil maps prepared by the Natural Resource Conservation Service for information regarding project soils. Although native species are adapted to Illinois soil conditions, determining the soil type can dictate the use of a specific species for planting.

59-7.05(c) Design Plans and Specifications

The design plans and specifications should contain the following information:

- type of seed bed preparation,
- delineation of planting locations including selective mowing stakes and signs,
- plant materials required and rates,
- fertilizer requirements (usually only for non-native species),
- mulch requirements and method,
- planting dates, and
- plant care requirements if plugs are used.

59-7.06 Perennial Plants

Perennial plants are hardy flowering bulbs, tubers, and herbaceous plants. Perennial non-native flowering plants are often used in the highest visual impact areas, usually in urban areas. Perennial native species often are used more in rural areas. Only specify perennial plants for use when:

- required by commitments in the Phase I report to resource and regulatory agencies and to comply with Federal requirements for wildflower planting,

- requested by local residents or communities, and /or

- needed on any highway to blend the right-of-way into adjacent land uses.

Planting beds containing non-native perennial plants are designed to give the impression of a highly maintained park-like atmosphere. These can be more expensive to establish than other plantings and require intense maintenance. High maintenance ornamental flower beds should only be planted when a local community agrees to accept maintenance of the flower bed. Use the following for planting perennial plants:

1. Non-Native. Non-native perennial plants require:

   - complete bed preparation,
   - fertilizer,
   - permanent mulch,
   - watering, and
   - a period of establishment.

2. Native. Native perennial plants require:

   - bed preparation or planting in existing turf;
   - mulch, unless planted in existing turf;
   - watering; and
   - a period of establishment.

59-7.07 Wetlands

59-7.07(a) Planning

Use the following guidelines when planning wetlands:

1. Project Goals and Objectives. Establish project goals and objectives for wetland compensation in the planning phase of highway development. For compensation that will be provided via wetland restoration or creation, the primary goal is to establish jurisdictional wetlands as defined by current Federal and State criteria. The secondary goal is to restore or create a specific amount (acres (hectares)) and type (emergent, forested) of wetland.

   The amount and type of wetland to be replaced is determined by the IDOT Agency Action Plan (see Section 26-8) and by the NEPA review process. For the Federal and State goal of no net loss of wetlands, the minimum replacement is 1:1 and the greatest is 5.5:1, replacement to loss. Usually, replacement should be in-kind, but out-of-kind may be justified.

2. Site Selection. Select sites that have a majority of poorly drained soils and that are designated as prior converted by the Natural Resources Conservation Service (NRCS). The NRCS field offices and published soil survey reports can provide information to

assist in identifying sites that meet these criteria. If either component of the criteria is not met, there are a number of obstacles that may arise that could block approval of the proposed wetland compensation site. If both criteria are satisfied, planning, design, construction, and maintenance of the planned wetland is much simplified.

Site selection also should include sufficient ground to buffer planned wetlands from adjacent land uses that are not compatible with the establishment of native plant communities. There exist no guidelines, regulatory or scientific, for determining the appropriate amount of buffer to provide. The minimal buffer consists of a 10 ft to 20 ft (3 m to 6 m) belt of upland that is planted with native grasses and forbs. Embankments planted to prairie may be sufficient.

3. Site Assessment. Assess every proposed wetland compensation site both off- and on-site for its possibilities and limitations. Evaluate the site using topographic maps, aerial photography, published soil survey reports, and other existing geographic information. Survey the site for existing vegetation cover types and jurisdictional wetlands. Field-check county soil survey mapping and delineate any hydric soils. Field-check the site's geology and hydrology for confining layers (aquacludes) and sources of surface water. Note the presence of drain tile blowouts and outlets.

59-7.07(b) Design

Keep designs for planned wetlands simple. Reliance on sophisticated design features to provide hydrology or other attributes will likely increase the margin for failure. Design for low maintenance and utilization of natural systems. Consider the following additional guidelines:

1. Grading. Even the best sites will require some earthwork (e.g., a shallow 1 ft to 2 ft (300 mm to 600 mm) berm may have to be constructed at property boundaries to contain surface water, or earth may have to be moved to enlarge an existing wetland). Excavation for creation of wetlands should extend no deeper than 1 ft to 2 ft (300 mm to 600 mm). Any deeper and side slopes become too steep and erosion and siltation become a problem. The shape or configuration of a wetland should be curvilinear like an oxbow and not geometric.

   Although sometimes recommended by regulatory agencies, stockpiling and backfilling topsoil generally is unnecessary for creation of wetlands. Because most substrates can be used as a medium for plant growth, it usually is unnecessary to specify their removal and backfilling with topsoil in the plans and specifications. This practice may be warranted only where soils are very shallow or clayey. In Illinois, most if not all, soils are very deep. Salvaged topsoil may contain a bank of weed seed that should not be used in the planned wetland.

2. Emergent Wetlands. Natural revegetation may be proposed for some exceptional sites. This approach to restoration may be acceptable to the regulatory agencies if it can be

demonstrated that a viable seed bank exists in the soils or that there is an adequate source of propagules. A cover or nurse-crop should be planted in areas proposed for natural revegetation. The nurse-crop stabilizes the soil and helps control weeds. A recommended nurse-crop mix consists of 55 lb/acre (62 kg/ha) annual ryegrass and 64 lb/acre (72 kg/ha) oats. Red top at 5.0 lb/acre (5.6 kg/ha) may be added to the mix. Never specify agricultural grain or perennial rye as a nurse crop. They can alter soil characteristics and impair the growth of desirable wetland plants.

At other sites, the revegetation may have to be accelerated. One to five percent of the surface area of the planned wetland should be planted and the rest seeded to a temporary cover. Tubers, corms, rootstock, etc., are usually set on 1 ft (300 mm) centers; however, the faster a species' rate of spreading, the more distance there can be between transplants. Planting areas should be protected from predators. Low netting supported 1 ft to 2 ft (300 to 600 mm) above the mature height of the plants works well.

The use of wetland seed mixes is discouraged. This type of planting requires a great deal of care and maintenance. Success has been poor with planting seed and there is extremely little information in the literature regarding which plant species can be successfully seeded.

3. Forested Wetlands. Forested wetlands usually are planted with two- to three-year-old, bare-root stock. Hardmast producing species are favored by the Federal regulatory agencies. The species of choice include swamp white oak (Quercus bicolor), pin oak (Q. palustris), pecan (Carya illinoensis), and shellbark hickory (C. laciniosa). These four species grow naturally throughout Illinois and are commercially available. A cover crop of oats (64 lb/acre (72 kg/ha)) and annual ryegrass (55 lb/acre (62 kg/ha)) should be planted with the trees. Red top at the rate of 5 lb/acre to 10 lb/acre (5.6 kg/ha to 11.2 kg/ha) may be added to the mix. This plant is hydrophytic.

   A common specification used by the regulatory agencies is that 5250 (2126) bare-root trees per acre (hectare) will be planted and that the survival rate each year for five years shall be 50%. The goal is for 2625 (1063) live trees per acre (hectare) at the end of five years. Trees may be planted 5 ft (1.5 m) on center in rows 10 ft (3 m) apart. Vegetation between rows should be mowed during the first two growing seasons.

   Seeds or acorns may be proposed for establishment of forested wetlands. A common specification is to plant three across in holes 2 in to 4 in (50 to 100 mm) deep. Each hole is 3 ft (900 mm) on center and rows are 10 ft (3 m) apart.

4. Plants. Use the following guidelines for plants:

   a. Selection. The best guideline for plant selection is to observe what is growing in similar wetlands near the planned wetland. Select the dominant or common plants in the model wetland for use in the planned one. Select natural associates and group plants by community type.

b. Nativity. Plants native to the region always should be specified for use in wetland replacement projects. It is considered counterproductive to specify the use of local native plants. Few, if any, nurseries can guarantee that their plant materials are local native to the wetland replacement site. Where feasible, buy plants from nurseries located within 100 miles (160 km) north or south and 200 miles (320 km) east or west of the compensation site.

c. Availability. Take care to specify only those species that are commercially available. Keep plant lists short and simple. Select the more common wetland plants and let nature fill-in with the uncommon species.

d. Adaptability. Many of our wetland plants, especially the woody ones, are propagated in uplands. Often these plants die in our planned wetlands because they are not adapted to wet conditions. Vegetation must be grown in conditions similar to those in which they will be planted. If this option is not available at the supplying nursery, dormant stock should be planted during the dormant season so that when the plants break dormancy they will develop the necessary structures for survival.

Young woody plant material should be specified because it is not use to growth under ideal conditions and is better able to adapt to wetlands. The survival rate for transplanted containerized plants and seedling plugs is higher than for seed, bare root, and balled and burlapped material.

5. Planting. Consider the following guidelines when planting:

a. Deconsolidation. Site construction plans and specification always should state that before planting, the substrates will be deconsolidated by plowing, discing, rototilling, or ripping. The depth of deconsolidation should be 4 in to 6 in (100 mm to 150 mm) for herbaceous material and 12 in to 18 in (300 mm to 450 mm) for woody plants.

b. Planting “In-The-Dry”. Wherever practical, plant “in the dry” with most of the water drained from the site. Water may have to be drained from a site mechanically (e.g., through pumping) so that planting “in the dry” may be accomplished and so that planting schedules may be met. Do not plant in standing water. Plantings are more likely to be done properly, and costs will be reduced by as much as a factor of 10.

c. Bowls. Do not build bowls around planting holes with excess soils. Bowls divert water from the plants during overland flow.

d. Mulch. Do not mulch plants because mulch will wash or float away.

e. Stakes and Anchors. Trees and shrubs more than 4 ft (1.2 m) in height should be staked using standard landscape specifications. Where surface water may freeze, trees and shrubs should be wired to anchors. The anchors should be sufficiently deep to prevent plant material from being lifted by ice.

59-7.08 Wildlife Habitat

Wildlife has four basic needs for habitat: food, water, shelter, and space. These needs can be provided through both vegetative and structural components in the landscape design. Consider the following guidelines:

1. Vegetative Cover. Vegetative components of wildlife habitat include:

   a. Conifers. Conifers provide escape cover, winter shelter, and summer nesting sites. Also, the sap, needles, twigs, buds, and seeds are eaten by wildlife.

   b. Grasses and Legumes. Grasses and legumes provide habitat for ground nesting birds; forage for deer, rabbits, woodchucks, meadow voles, and others; hunting areas for foxes, hawks, kestrels, owls, coyotes, weasels, and skunks; winter cover for pheasants and deer; and winter food for seed-eating winter birds.

   c. Nectar Plants. Nectar plants typically are provided for hummingbirds, orioles, bees, moths, and butterflies.

   d. Other. Other vegetative cover include:

      - summer fruit, berry, and cover plants;
      - fall fruit, grains, and cover plants;
      - winter fruits and cover plants; and
      - mast — plants that produce nuts and acorns.

2. Structural Components. Structural components of wildlife habitat include:

   - nest boxes;
   - dead trees, fallen trees, and perches;
   - brush piles and rock piles;
   - cut banks, cliffs, and caves;
   - dust and grit;
   - salt; and
   - water.

The type of vegetative and structural components of wildlife habitat restoration will be dictated by the species involved, degree of impact, and availability of plant material. A number of

published guides exist that list habitat requirements for wildlife species. Consult the district Environmental Coordinator and Landscape Architect prior to initiating design.

59-7.09 Planting in Urbanized Areas

Use the following criteria for planting in urbanized areas:

1. Minimum Distance from Intersections, Alleys, and Driveways. The following criteria relates to distances as measured from the property line and along the property lines:

    a. Intersections. Do not locate trees within 50 ft (15 m) on the near side and 20 ft (6 m) on the far side of the intersection (see Figure 59-7B). Trees on medians should be located a minimum of 50 ft (15 m) from intersections.

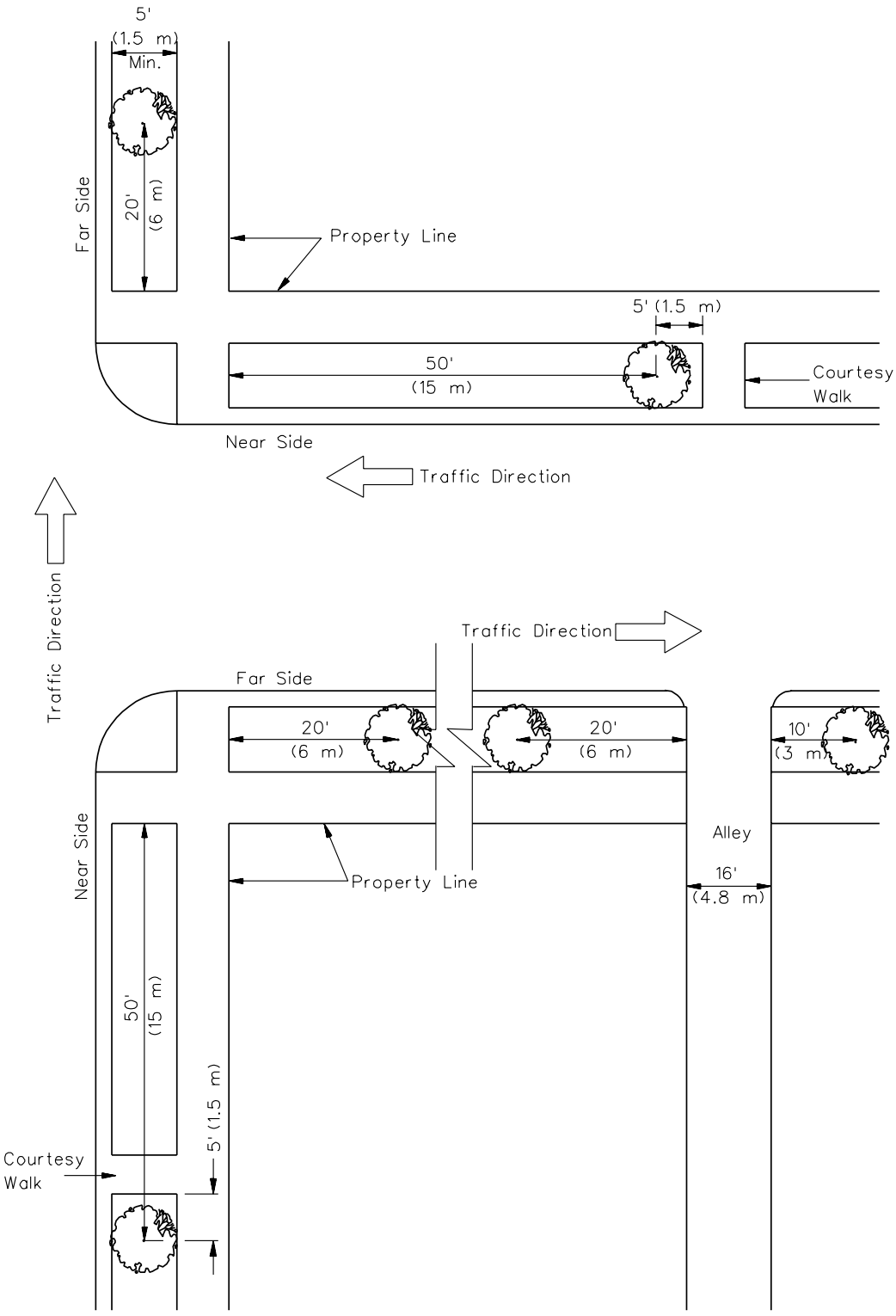
    b. Alleys. Do not locate trees within 20 ft (6 m) on the near side and 10 ft (3 m) on the far side.

    c. Commercial Driveways. Do not locate trees within 20 ft (6 m) on the near side and 10 ft (3 m) on the far side.

    d. Residential Driveways. Do not locate trees within 10 ft (3 m).

2. Minimum Distances from Walks, Curbs, Utilities, and Structures. The following criteria applies from face of curb or center of utility to edge of tree, as measured horizontally:

    - sidewalks and carriage walks — 1 ft (900 mm);
    - access of courtesy walks — 5 ft (1.5 m);
    - face of curb — 4 ft (1.2 m);
    - manholes and catchbasins — 10 ft (3 m);
    - fire hydrants — 10 ft (3 m);
    - underground utility mains and services — 5 ft (1.5 m);
    - street lights — see Item 3;
    - existing trees — see spacing criteria below;
    - overhead wires — no ascending shade trees will be planted under overhead wires;



MINIMUM PLANTING DISTANCES FROM INTERSECTIONS

Figure 59-7B

- railroad crossings — 100 ft (30 m), written approval from railroad is required to plant within 100 ft (30 m); and

- other structures — 30 ft (9 m) or as directed.

These requirements are for reduced speed urbanized areas and must be adjusted for higher speeds so that clear zone and sight distance requirements are met.

3. Minimum Basal Clearance Between Trees and Structures. Basal clearance is defined as the distance from the center of the tree to the structure or object involved. See Figure 59-7C. Minimum basal clearance between trees and between trees and structures located on parkways, medians, or other areas of the right-of-way are as follows:

   - Trees with spreading crowns must have a minimum basal clearance of 15 ft (4.5 m).

   - Trees with global or pyramidal crowns must have a minimum basal clearance of 12 ft (3.6 m).

   - Trees with fastigiate or columnar crowns must have a minimum basal clearance of 10 ft (3 m).

   - Do not plant trees in areas where basal clearance is less than 10 ft (3 m) without written permission from the district Landscape Architect.

   - The Department will determine the form classification of a given tree or species of tree. See Figure 59-7D.

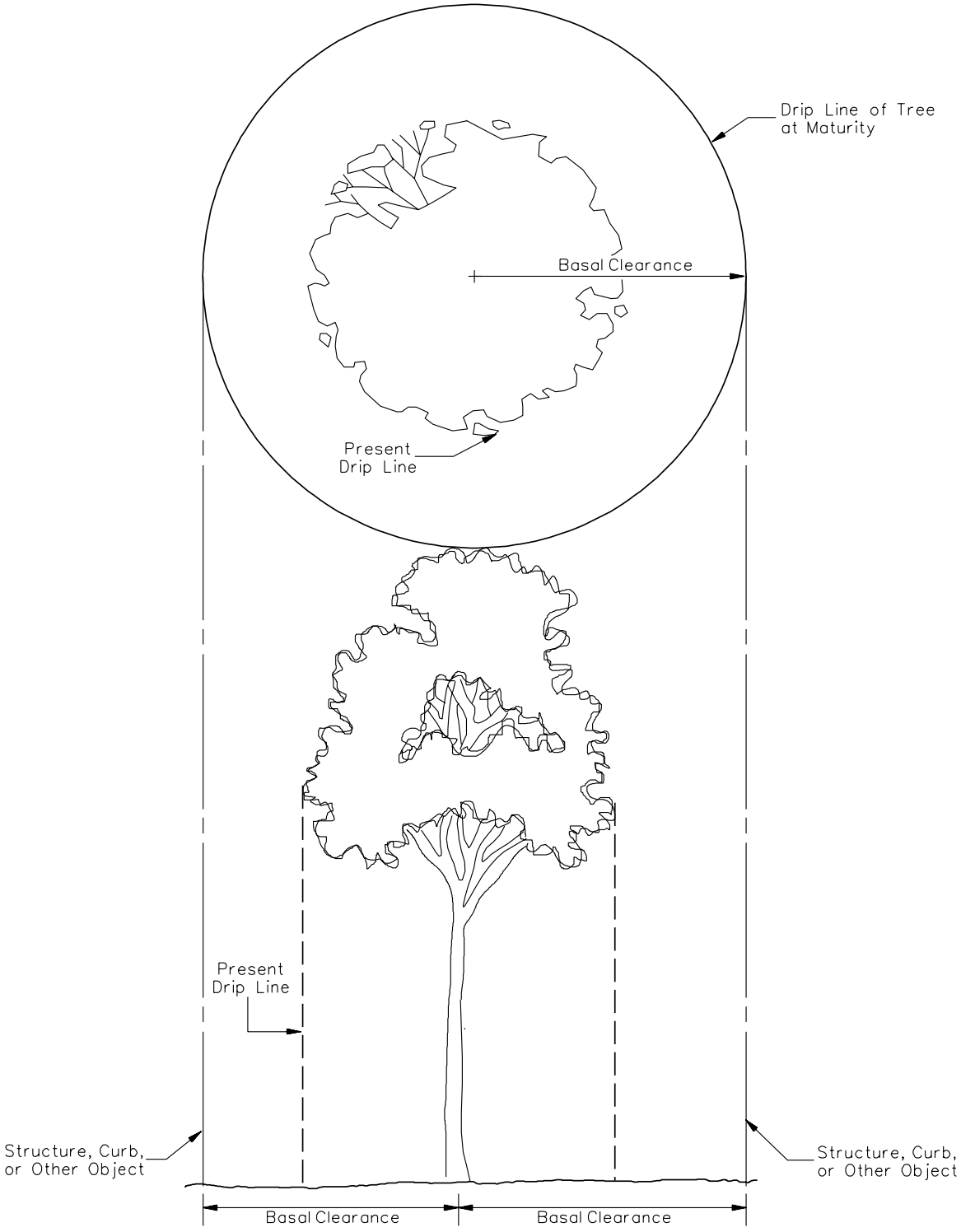
   - Select tree species from the approved tree list of the district Landscape Architect or from a municipal tree list if it is applicable to the project site.

4. Spacing of Trees Within Parkways. Use the following criteria for spacing of trees within parkways:

   - Space trees with spreading crowns at a minimum of 30 ft (9 m).

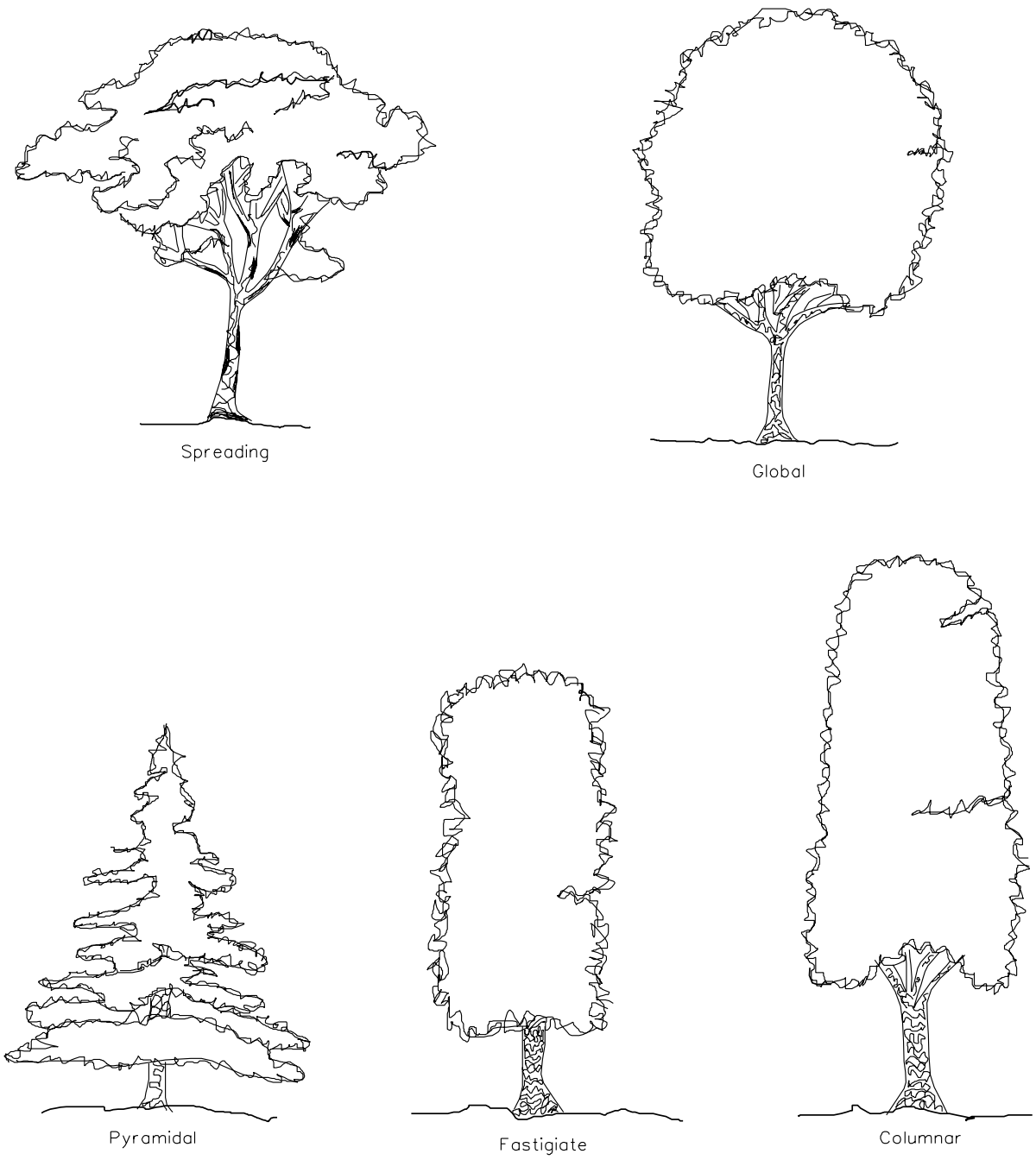
   - Space trees with global or pyramidal crowns at a minimum of 25 ft (7.5 m).

   - Space trees with fastigiate or columnar crowns at a minimum distance of 20 ft (6 m).



BASAL CLEARANCE

Figure 59-7C



REPRESENTATIVE FORM CLASSES

Figure 59-7D

5. Spacing Between Trees Within Median or Other Right-of-Way Areas. Spacing will follow the same criteria given for spacing between trees within parkways with the following exception: if the median is concrete paving or other hard surface material, obtain written approval for the specific tree planting proposal. Spacing of trees located on other right-of-way must be approved by the district Landscape Architect.

6. Width of Parkway, Medians, and Other Public Ways. Landscape designs must be so arranged to provide a sufficiently wide, clear, and safe pedestrian walkway. The required width will in no case be less than 6 ft (1.8 m) wide, measured from a line 1 ft (300 mm) within the right-of-way. Use the following criteria:

   a. Minimum Width of Parkways. Use the following criteria for minimum width of parkways:

      - Do not plant trees on any parkway that is less than 6 ft (1.8 m) in width except when specific permission is granted by the district Landscape Architect.

      - Do not plant trees on any commercial or industrial sidewalk or cut-out in a sidewalk that is less than 16 ft (4.8 m) in width, except when specific permission is granted by the district Landscape Architect.

   b. Minimum Width of Medians. Do not plant any trees or shrubs in a median unless a local community agrees to the maintenance of the median. Do not plant trees on any median that is less than 10 ft (3 m) in width, except when specific permission is granted by the district Landscape Architect.

   c. Minimum Width of Other Right-of-Way. Do not plant trees on any right-of-way that is less than 26 ft (7.8 m) in width except when specific permission is granted by the district Landscape Architect.

7. Lateral Location of Trees Within Parkways, Medians, and Right-of-Way Areas. Use the following lateral location criteria:

   - The lateral location of trees being planted should reflect the ultimate pavement width of arterial streets.

   - Where practical, trees planted in parkways will be planted in the lateral center of the parkway, or as close to it as practicable, unless specifically approved otherwise.

   - Space and locate trees planted according to their crown form, basal clearance, and the recommendations of the district Landscape Architect.

In urbanized areas, a maintenance agreement with the local agency is usually required.

59-7.10 Visual Quality

Visual quality is a functional goal that is achieved by conserving existing visual resources and enhancing the built environment through landscape and environmental design. Consider the following factors during design:

- the view from the road and of the road;
- outstanding scenic qualities;
- the color choices for roadside features;
- the location of utilities;
- clear zones, sight lines, and profiles;
- bridge and structure designs;
- number, type, and location of signage; and
- noise mitigation structures.

59-7.11 Erosion Control

See Section 59-8 for information on erosion and sediment control.

59-7.12 Architectural Design Elements

There are a number of architectural design elements that can be incorporated into highway design to make the project compatible with its environment including:

- retaining walls constructed with special finishes, modular block, or stone;
- noise barrier walls;
- sight-screen fences and walls to screen unsightly areas such as junkyards;
- sculptures, graphics, and other special art work;
- guardrails and concrete barriers;
- highway appurtenances including signs, delineators, traffic signals, and control boxes;
- access control fencing;
- bridge designs;

- light poles, historical lighting fixtures, and lighting of tunnels, bridges, and pedestrian sidewalks and trails;
- enhanced light quality and special aesthetic enhancement light for structures, sculptures, flag poles, and other artwork;
- planter boxes;
- bicycle racks;
- bollards and barriers; and
- decorative surface areas including stone surfaces, patterned and/or colored concrete, and precast concrete pavers and natural stone pavers.

59-7.13 Plan Preparation

Provide a copy of the construction plan sheets and cross sections to the district Landscape Architect for plant placement/replacement input.

Include the following in the plans:

1. plant key sheet, including the following information:
    - code numbers with heading of trees, intermediate shrubs, evergreens, seedlings, and wildflowers;
    - scientific name;
    - common name;
    - code size;
    - measured size (include balled and burlapped, container grown, and bare root);
    - key number (optional);
    - each or units;
    - quantity;

- sheet locations; and
- general notes, if any;

2. sheets showing actual location of items on project with key number; and

3. any standard sheet (e.g., details of hole size, bracing, mulch).

See Chapter 63 for further details.

59-7.14 Highway Related Areas

The transportation system contains supplemental areas and facilities (e.g., bikeways, information centers, weigh stations, rest areas) that are specifically designed for uses other than driving. It is important to understand that these areas and facilities are integral, not separate, features of the highway. Detailed treatment is required to ensure that these areas and facilities provide maximum benefit to the user and blend into or complement the surrounding landscape.

The need for supplemental highway related areas and facilities are evaluated at the inception of the design process. Rest areas, scenic overlooks, information centers, and truck weigh stations usually are planned in conjunction with the entire highway system. Other facilities are designed to take advantage of the environment through which the highway passes. Urban streetscape and scenic highways can be either carefully planned and managed or evolve unplanned.

Separate bikeways can exist within the right-of-way. Park-and-ride lots are becoming increasingly important aspects of the highway and must be addressed in evaluating the total highway environment.

As highways and bridges are being reconstructed in response to age, determination, and changes in use, similar attention must be paid to the various highway related areas that have been constructed to support the highway system. Consult the AASHTO publication *A Guide For Transportation Landscape and Environmental Design* for considerations involving highway related areas. See Chapter 16 for information on rest areas and weigh stations.

59-7.15 Roadside Seeding in Areas Disturbed By Construction

Since the early 1980's, the Department's decisions on type of cover and plant material for roadside areas have been largely influenced by consideration of the level of maintenance/management anticipated for the areas involved. This practice has helped the Department to achieve a better fit between available funding and manpower resources and the amount of roadside maintenance needed. Experience during this period has shown that where a low level of maintenance/management is desired, native Illinois grasses and other native selections often are the best choice for planting. Furthermore, the Federal Highway

Administration has recently issued guidance that encourages the use of plants native to the project locale where practical. The guidance in this topic clarifies requirements on developing plan specifications for roadside seeding/cover and is intended to maximize the benefits of using native plants.

Use the following procedures in developing seeding/cover specifications for 3R, reconstruction, and new construction projects:

1. Mowing Widths. Consult with the District Bureau of Operations to determine applicable mowing widths for all projects in accordance with current mowing policies of the Bureau of Operations.

2. Seeding For Mowed Areas. In all areas which Operations' policy stipulates must be mowed, specify the appropriate seeding selections from Classes 1 or 2, depending upon the site conditions and geographical location of the project. The designer should consult the District Landscape Architect on the specific seeding selections.

3. Seeding For Areas That Will Not Be Mowed. In those areas which Operations' policy stipulates are not to be mowed regularly, specify appropriate seeding selections from Class 4 or, for steep inaccessible slopes, from Class 3. As with specifications for mowed areas, the designer should consult with the District Landscape Architect on the selections within these classes for specific circumstances. Do not use Class 4 seeding in ditch bottoms or drainage ways where it would impede the flow of water. In areas that are not to be mowed, plantings within 10 ft (3 m) of the shoulder break/face-of-curb should not exceed a height of 3 ft (1 m) at maturity and should not interfere with sight distances.

4. Seeding For Areas Involving Special Environmental Commitments. For project goals or commitments involving wildflower planting, environmental mitigation, aesthetics, or habitat enhancement the designer should consult with the District Landscape Architect on the use of Class 5 or Class 6 seeding.

5. Overseeding/Interseeding On 3R Or Reconstruction Projects. On 3R or reconstruction projects, existing turf in unmowed areas and all damaged turf should be overseeded or interseeded in accordance with the specifications using an appropriate class as determined by the District Landscape Architect to establish turf that will require little or no regular maintenance.

6. Turf Establishment On New Construction Projects. On new construction projects, turf should be established by conventional methods appropriate to the seeding class utilized.

7. Use Of Other Grasses and Forbs. Grasses and forbs other than those in seeding Classes 1 through 6 may be specified for use at the discretion of the District Landscape Architect. Any such plants must be appropriate to the location and intended management of the project, and generally, should be species native to the project locale.

59-8 EROSION AND SEDIMENT CONTROL

59-8.01 Background

Ensure appropriate implementation of erosion and sediment control measures on highway construction projects as necessary to protect the roadway and associated rights-of-way, adjacent properties, and sensitive environmental resources (e.g., endangered and threatened species, wetlands, water bodies, and other resources for which the Department commits to the implementation of erosion and sediment control measures). The policies documented in this section are for use to comply with Federal Highway Administration regulations on erosion and sediment control which are detailed in 23 CFR 650, Subpart B. They also ensure fulfillment of commitments for erosion and sediment control associated with Section 404 permits issued by the U.S. Army Corps of Engineers, or such commitments made to the Illinois Environmental Protection Agency (IEPA), and other regulatory and natural resource agencies during project development.

The National Pollutant Discharge Elimination System (NPDES) program under Section 402 of the Federal Clean Water Act currently imposes erosion and sediment control requirements on construction projects that involve disturbance of 5 acres (2 ha) or more of total land area. The IEPA has issued a statewide general permit that details the NPDES requirements for construction projects that meet or exceed the threshold for permit applicability. After March 10, 2003, projects that disturb 1 acre (4047 m^2) or more will be subject to the statewide general permit under Phase II of the NPDES program for storm water discharges.

59-8.02 Policy

The procedures in this section are applicable to all State highway projects. Provide erosion and sediment control on all projects which will expose areas of soil to potential displacement by storm events such that sediment could adversely affect operations on the highway or associated rights-of-way, could be introduced into receiving waters, or could affect adjacent properties, sensitive environmental resources, or other resources which the Department has committed to protect from sedimentation impacts. The nature and extent of the control measures should be appropriate to address the specific conditions involved and the measures will be properly maintained to ensure continued effective operation.

Projects that involve no clearing and grubbing, excavation, stockpiling of topsoil, borrow, or construction of embankment normally will not require erosion and sediment control measures. Projects that involve only isolated excavation for installation of lighting, signing, traffic signals, guardrail, or woody plant materials likewise normally will not require erosion and sediment control measures. The following are examples of actions that normally will not require erosion and sediment control measures:

- installation of lighting, signing, traffic signals, or guardrail;
- weed spraying;

- pavement marking;
- seal coating;
- bituminous resurfacing;
- pavement patching; and
- planting of woody landscaping materials.

Evaluate the need for erosion and sediment control (and any additional right-of-way necessary to accommodate their implementation) prior to the preparation of design plans and include the appropriate information to address the identified needs in the plans. Erosion and sediment control needs should be evaluated and addressed for construction of both roadway and bridge/culvert components of proposed projects. Include in the plans information identifying the types of erosion and sediment control practices to be used, the locations in which they will be applied, and when they should be applied in relation to the sequence of construction operations. The sequence of construction operations need not be specified in the plans for this purpose. Rather, describe the application of erosion and sediment control measures in relation to the specific stages of construction that will expose soil, wherever those stages occur. Locations for use of practices such as perimeter silt fence and ditch checks may be specified in schedules, as appropriate. The location and design for non-routine practices will be drawn in the plans.

59-8.03 Procedures

The following subsections describe procedures for addressing erosion and sediment control requirements in project planning and design. The basic requirements are similar for all projects involving the implementation of erosion and sediment control measures. The district must ensure that any special needs or commitments associated with sensitive environmental resources, Section 404 permits, NPDES permits, or other permits, are appropriately reflected in project plans.

For all counties in District One, the Corps of Engineers has entered into an agreement with the county Soil and Water Conservation District (SWCD) to perform specific services regarding erosion and sediment control plans. These services include the following activities:

- reviewing and evaluating proposed erosion and sediment control plans;

- attending preconstruction meetings to review implementation of the erosion and sediment control plans;

- reviewing and commenting on inspection reports and proposed corrective measures for erosion and sediment control;

- conducting on-site inspections to determine compliance with approved erosion and sediment control plans; and

- determining, after construction has been completed, whether permanent site stabilization has been achieved and identifying operation and maintenance needs.

The involvement of the SWCD, and the procedures for their involvement, will be directed by the Corps in the Section 404 permit. These procedures recognize the existence of the agreement between the Corps and the SWCD and acknowledge its effect on the review of erosion and sediment practices for projects in the affected counties. However, they do not detail the additional coordination and processing the agreement may require.

59-8.04 Project Planning and Design (Phase I and Phase II)

The process for addressing erosion and sediment concerns begins with an analysis of the area that will be affected by construction operations. For highway/bridge projects, this should include the roadway component and any required bridge(s)/culvert(s). The purpose of this analysis is to gather information necessary for identifying the probable erosion and sediment control needs for the proposed project and any special practices that may be required. For this purpose, gather the following information:

- determination of whether the project will involve a sufficient area of soil disturbance to require compliance with the NPDES permit requirements;

- location and size of bridges and culverts and associated need for erosion and sediment control measures to address in-stream work and work affecting the adjacent banks;

- type and location of any resources requiring special consideration for protection from erosion and sedimentation (e.g., wetlands, endangered and threatened species locations, other resources involving special commitments for protection);

- drainage areas, available hydraulic data, and soil type (if soils information is obtained in the planning phase) in locations of the project to be affected by clearing and grubbing, excavation, or placement of embankment; and

- locations in which routine devices such as ditch checks and perimeter silt fencing will be used and the type and location of other, non-routine devices or practices required.

The district will conduct this analysis after environmental resources in the area have been identified and the location and general design of the project have been established. The results of the analysis will be documented in a form that will clearly communicate the information for consideration during preparation of the plans and specifications. The “Erosion and Sediment Control Analysis” form (BDE 2394) is available for this purpose through the “FORMS” button in Word on the LAN. Include the information from the erosion and sediment control analysis in the project engineering report and the district commitment file.

The following principles guide the overall approach to erosion and sediment control for projects that warrant application of control practices:

- define construction limits to keep soil disturbance to the minimum necessary for construction of the project;
- where appropriate to protect sensitive resources, provide staging of construction operations to minimize the amount of area exposed at any given time and maximize the vegetative area to be left on the construction site;
- divert “clear” water flowing through the construction site away from disturbed areas;
- intercept and contain sediment close to its source and contain all project related sediment on the project site, including sediment disturbed as a result of in-stream work;
- address any commitments that relate to erosion and sediment control in the plans;
- reflect in the construction plans and specifications that permanent erosion and sediment controls will be implemented as quickly as practical; and
- establish pay items according to appropriate specifications and standards for all temporary erosion and sediment control measures and associated maintenance. See Section 59-8.05 for discussion of temporary erosion control items.

The selection and application of erosion and sediment control measures should reflect use of the best temporary and permanent devices and practices appropriate for the site and project conditions. Section 59-8.05 provides information regarding various available erosion and sediment control measures and the applications to which each is best suited.

Based on the erosion and sediment control analysis and subsequent decisions on specific devices and practices recommended for use, incorporate appropriate information for the erosion and sediment control measures in the plans and specifications. Erosion and sediment control needs should be addressed in the plans for construction of both the roadway and bridge/culvert components of highway/bridge projects.

Temporary measures will be used to control erosion and sedimentation while a project is under construction, prior to establishment of permanent measures. Permanent measures are part of the completed project and will be used to prevent erosion and sedimentation after completion of the construction project. Include appropriate pay items and details (e.g., Standard 280001) in the plans and specifications to implement the selected erosion and sediment control measures. The erosion and sediment control information in the plans should make clear what types of measures, or if known, what specific measures, are to be implemented in relation to each component of construction operations that will expose areas of earth or stockpiles of material to possible erosion from storm events. The plans will reflect that for each aspect of construction

requiring erosion and sediment control, the placement of the necessary measures should be timed to optimize their effectiveness. On projects for which a pre-bid meeting is conducted, the erosion and sediment control measures in the plans will be discussed at that meeting.

For projects that are subject to the statewide general NPDES Storm Water Permit for Construction Site Activities (Figure 59-8A) (See Section 59-8.01), the district is responsible for preparing and updating as necessary throughout subsequent stages of project implementation, a Storm Water Pollution Prevention Plan - BDE 2342 (SWPPP) (see example in Figure 59-8B). BDE 2342 is available via the “Forms” button in Word on the LAN. This Plan must address storm water pollution prevention measures for construction of the roadway and any bridge(s)/culvert(s) included in the project. The portions of the Plan describing the construction activity, the proposed erosion and sediment controls and associated maintenance practices, and any requirements applicable under approved State or local erosion and sediment control plans will be prepared prior to project implementation. The parts of the Plan regarding the intended sequence of construction operations and any non-storm water discharges affecting the construction area should be initiated in design and finalized during the project implementation phase. The Storm Water Pollution Prevention Plan must be signed by the District Engineer or his duly authorized representative, in accordance with Part VI G of the Storm Water Permit for Construction Site Activities. For projects subject to the NPDES Storm Water Permit for Construction Site Activities, include in the contract the Recurring Special Provision for the "National Pollutant Discharge Elimination System Permit” and the SWPPP. The SWPPP may be included with either the special provisions or in the plans.

59-8.05 Temporary Erosion Control Systems

Temporary erosion control systems are meant to control erosion and sediment damages to the roadway, adjacent properties and water resources during the construction phase and before the final erosion control measures can be placed. Temporary practices include the use of sedimentation basins, temporary ditch checks, perimeter erosion barriers, temporary seeding and other erosion control devices and methods. The designer must ensure that the temporary erosion control system is fully coordinated with the permanent erosion control measures. The following are the various available types of erosion and sediment control systems and the applications to which each is best suited:

1. Temporary Ditch Checks. When used, this system acts as a dam and slows the velocity of water through the project. Temporary ditch checks should be used at the outfall of existing ditches to collect silt. Straw bales, rolled excelsior, or urethane foam/geotextile ditch checks should be used for newly seeded ditch lines that have a velocity of less than 8 ft/sec (2.4 m/sec) (See Figure 59-8C for the recommended spacing). Aggregate ditch checks should be used for ditch lines with a velocity of 8 ft/sec (2.4 m/sec) or greater. The designer should specify the type of temporary ditch check to be used.

   Specify an aggregate ditch check for each 1 ft (300 mm) drop in the ditch line elevation. The designer should note on the plans whether the aggregate ditch check is to remain

after the project is complete, to be distributed as part of the ditch lining after the project is complete, or to be removed after the project is complete. Remove aggregate ditch checks where stones would end up in a mowed grass area or where ponding water in the ditch line would cause drainage problems upstream or in the roadway subgrade.

2. Perimeter Erosion Barrier. This system is used to prevent exposed soil along the perimeter of the project from leaving the job site and can prevent exposed soil adjacent to the project from entering the job site. The NPDES Permit requires the perimeter erosion barrier to be in place prior to any earth disturbing activities. The designer should specify this system at the limits of construction site where sediment in sheet flow will run off from the area under construction and can be captured. The maximum allowable slope length contributing run off to the perimeter barrier is shown in Figure 59-8D.

3. Inlet and Pipe Protection. This system protects inlets that will receive runoff from areas within the limits of construction and inlets along access streets where material will be tracked by construction vehicles. Inlet and pipe protection for initial sediment control should be specified for existing inlets. The designer should specify in the plans that the proposed inlets and pipes should be protected immediately after they are constructed until the surfaces that drain to them are paved or revegetated.

4. Sedimentation Basins. Sedimentation basins are settling ponds constructed to trap waters carrying sediment. The basins detain sediment laden runoff from larger drainage areas long enough for most of the sediment to settle out. Sedimentation basins have a maximum designed depth of 2 1/2 ft (750 mm) and a maximum designed allowed drainage area of 5 acres (2 ha). The designer should note on the plans whether the sediment basins are to remain after construction is complete or whether they are to be filled and revegetated. Holes and ditches can create safety hazards on construction sites that should be considered and adequately protected. Guidance for use of sediment basins can be found in the *Illinois Urban Manual* at www.il.nrcs.usda.gov under Technical Resources. A matrix providing the drainage area and capacity for a sediment basin is shown in Figure 59-8E.

5. Temporary Ditches. This system is constructed to divert and/or intercept water borne silt and runoff at designated locations. Temporary ditches are also used to divert clean water around construction sites and to stop the mixing of clean waters with silt-laden waters. It may be necessary to line the temporary ditch with a fabric barrier to stop sediment introduction into the waterway. Ditches can create safety hazards on construction sites that should be considered and adequately protected. Guidance for use of temporary ditches can be found in the *Illinois Urban Manual* at www.il.nrcs.usda.gov under Technical Resources.

6. Temporary Erosion Control Seeding. This system should be used on a weekly basis to cover those areas of exposed soil due to contractor operations. The designer should specify temporary erosion control seeding on all projects where grading or soil stockpiling is involved. Erosion control blanket should be specified for use with

temporary erosion control seeding for exposed areas adjacent to bodies of water, for lining ditches, and for slopes 1V:3H or steeper.

7. Temporary Mulch. This system should be specified for temporary cover when grading will occur on a project after September 30th or in the winter when temporary seed will not germinate and provide erosion protection until the following spring. Mulch, Method I; Mulch, Method 2; and Erosion Control Blanket are the various methods used for temporary mulch. The designer should note in the plans when temporary mulch is required so the quantity required for final permanent seeding does not appear incorrect.

8. Aggregate (Erosion Control). This system can be used as an erosion control method to prevent soil displacement. Various uses would include aggregate ditch checks, aggregate lined ditches, or aggregate for temporary construction entrances. The designer should specify the proper aggregate gradation. Guidance for use of aggregate for erosion control can be found in the *Illinois Urban Manual* at www.il.nrcs.usda.gov. The designer should state in the plans whether the aggregate is to remain in place following construction or if it is to be removed and the area restored with vegetation.

NPDES Permit No. ILR10

Illinois Environmental Protection Agency
Division of Water Pollution Control
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

CONSTRUCTION SITE ACTIVITIES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) Storm Water Permit

Expiration Date: May 31, 2003 **Issue Date:** May 14, 1998

Effective Date: June 1, 1998

In compliance with the provisions of the Illinois Environmental Protection Act, the Illinois Pollution Control Board Rules and Regulations (35 Ill. Adm. Code, Subtitle C, Chapter I), and the Clean Water Act, and the regulations thereunder the following discharges are authorized by this permit, in accordance with the conditions and attachments herein:

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

Part I. COVERAGE UNDER THIS PERMIT

A. **Permit Area**. The permit covers all areas of the State of Illinois with discharges to any waters of the State.

B. **Eligibility**.

1. This permit shall authorize all discharges of storm water associated with industrial activity from construction sites, (those sites or common plans of development or sale that will result in the disturbance of five or more acres total land area), (heretofore referred to as storm water discharges from construction activities) occurring after the effective date of this permit (including discharges occurring after the effective date of this permit where the construction activity was initiated before the effective date of this permit), except for discharges identified under paragraph I.B.3 (Limitations on Coverage).

2. This permit may only authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

   a. the industrial source other than construction is located on the same site as the construction activity;

   b. storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

   c. storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring (including storm water discharges from dedicated asphalt plants and dedicated concrete plants) are covered by a different NPDES general permit or individual permit authorizing such discharges.

3. **Limitations on Coverage**. The following storm water discharges from construction sites are not authorized by this permit:

   a. storm water discharges associated with industrial activity that originate from the site after construction activities have been completed and the site has undergone final stabilization.

   b. discharges that are mixed with sources of non-storm water other than discharges identified in Part III.A (Prohibition on Non-Storm Water Discharges) of this permit and in compliance with paragraph IV.D.5 (Non-Storm Water Discharges) of this permit.

   c. storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit or which are issued a permit in accordance with Part VI.N (Requiring an Individual Permit or an Alternative General Permit) of this permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitations for such discharges; and

   d. storm water discharges from construction sites that the Agency has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard.

NPDES PERMIT NO. ILR10

Figure 59-8A

e. Storm water discharges that the Agency, at its discretion, determines are not appropriately authorized or controlled by this general permit.

C. **Authorization**.

1. In order for storm water discharges from construction sites to be authorized to discharge under this general permit a discharger must submit a Notice of Intent (NOI) in accordance with the requirements of Part II below, using an NOI from provided by the Agency, or be covered by a valid Illinois General NPDES Construction Site Activities Permit.

2. Where a new operator (contractor) is selected after the submittal of an NOI under Part II below, a new Notice of Intent (NOI) must be submitted by the owner in accordance with Part II.

3. For projects that have complied with State law on historic preservation and endangered species prior to submittal of the NOI, through coordination with the Illinois Historic Preservation Agency and the Illinois Department of Natural Resources or through fulfillment of the terms of interagency agreements with those agencies, the NOI shall indicate that such compliance has occurred.

Unless notified by the Agency to the contrary, dischargers who submit an NOI in accordance with the requirements of this permit are authorized to discharge storm water from construction sites under the terms and conditions of this permit either:

a. 48 hours after the date the NOI is postmarked, if the project had established compliance with Illinois law regarding historic preservation and endangered species prior to submittal of the NOI;
or

b. 30 days after the date the NOI is postmarked, if the project had not established compliance with Illinois historic preservation and endangered species requirements prior to submittal of the NOI.

The Agency may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information.

Part II. NOTICE OF INTENT REQUIREMENTS

A. **Deadlines for Notification**.

1. To receive authorization under this general permit, a discharge must either be covered by a valid Illinois General NPDES Construction Site Permit, or a Notice of Intent (NOI) in accordance with the requirements of this part must be submitted prior to the commencement of construction. For projects that have established compliance with Illinois law regarding historic preservation and endangered species prior to submittal of the NOI, the NOI must be submitted at least 48 hours prior to the commencement of construction. For all other projects, the NOI must be submitted at least 30 days prior to the commencement of construction.

2. Discharges that are covered by a valid Illinois General NPDES Construction Site Activities Permit are automatically covered by this permit.

3. A discharger may submit an NOI in accordance with the requirements of this part after the start of construction. In such instances, the Agency may bring an enforcement action for any discharges of storm water associated with industrial activity from a construction site that have occurred on or after the start of construction.

B. **Failure to Notify**. Dischargers who fail to notify the Agency of their intent to be covered, and discharge storm water associated with construction site activity to Waters of the State without an NPDES permit, are in violation of the Environmental Protection Act and Clean Water Act.

C. **Contents of Notice of Intent**. The Notice of Intent shall be signed in accordance with Part VI.G (Signatory Requirements) of this permit by all of the entities identified in paragraph 2 below and shall include the following information:

1. The mailing address, and location of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the approximate center of the facility to the nearest 15 seconds, or the nearest quarter section (if the section, township and range is provided) that the construction site is located in;

2. The owner's name, address, telephone number, and status as Federal, State, private, public or other entity.

3. The name, address and telephone number of the general contractor(s) that have been identified at the time of the NOI submittal;

4. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the ultimate receiving water(s);

5. The number of any NPDES permit for any discharge (including non-storm water discharges) from the site that is currently authorized by an NPDES permit.

6. A yes or no indication of whether the owner or operator has existing quantitative data which describes the concentration of pollutants in storm water discharges (existing data should not be included as part of the NOI); and

7. A brief description of the project, estimated timetable for major activities, estimates of the number of acres of the site on which soil will be disturbed, and a certification that a storm water pollution prevention plan has been prepared for the facility in accordance with Part IV of this permit, and such plan provides compliance with local sediment and erosion plans or permits and/or storm water management plans or permits in accordance with paragraph VI.G.1 (Signatory Requirements) of this permit. **(A copy of the plans or permits should not be included with the NOI submission).**

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Figure 59-8A
(Continued)

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D. **Where to Submit.**

1. Facilities which discharge storm water associated with construction site activity must use a NOI form provided by the Agency. NOIs must be signed in accordance with Part VI.G (Signatory Requirements) of this permit. NOIs are to be submitted certified mail to the Agency at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attention: Permit Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

2. A copy of the letter of notification of coverage or other indication that storm water discharges from the site are covered under an NPDES permit shall be posted at the site in a prominent place for public viewing (such as alongside a building permit).

E. **Additional Notification.** Facilities which are operating under approved local sediment and erosion plans, grading plans, or storm water management plans, in addition to filing copies of the Notice of Intent in accordance with Part D above, shall also submit signed copies of the Notice of Intent to the local agency approving such plans in accordance with the deadlines in Part A above. See Part IV.D.2.d (Approved State or Local Plans).

F. **Notice of Termination.** Where a site has been finally stabilized and all storm water discharges from construction sites that are authorized by this permit are eliminated, the permittee of the facility may submit a Notice of Termination that is signed in accordance with Part VI.G (Signatory Requirements) of this permit.

1. The Notice of Termination shall include the following information:

a. The mailing address, and location of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location can be described in terms of the latitude and longitude of the approximate center of the facility to the nearest 15 seconds, or the nearest quarter section (if the section, township and range is provided) that the construction site is located in;

b. The owner's name, address, telephone number, and status as Federal, State, private, public or other entity.

c. The name, address and telephone number of the general contractor(s);

d. The following certification signed in accordance with Part VI.G (Signatory Requirements) of this permit:

"I certify under penalty of law that all storm water discharges associated with construction site activity from the identified facility that are authorized by NPDES general permit ILR100000 have otherwise been eliminated. I understand that by submitting this notice of termination, that I am no longer authorized to discharge storm water associated with construction site activity by the general permit, and that discharging pollutants in storm water associated with construction site activity to Waters of the State is unlawful under the Environmental Protection Act and Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act."

For the purposes of this certification, elimination of storm water discharges associated with industrial activity means that all disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated.

2. All Notices of Termination are to be sent, using the form provided by the Agency to the address in paragraph II.D.1.

Part III. SPECIAL CONDITIONS, MANAGEMENT PRACTICES, AND OTHER NON-NUMERIC LIMITATIONS

A. **Prohibition on Non-Storm Water Discharges.**

1. Except as provided in paragraph I.B.2 and 2 below, all discharges covered by this permit shall be composed entirely of storm water.

2. a. Except as provided in paragraph b below, discharges of materials other than storm water must be in compliance with a NPDES permit (other than this permit) issued for the discharge.

b. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharges is in compliance with paragraph IV.D.5 (Non-Storm Water Discharges): discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles or control dust; potable water sources including waterline flushings; irrigation drainages; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

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Figure 59-8A
(Continued)

Part IV. STORM WATER POLLUTION PREVENTION PLANS

A storm water pollution prevention plan shall be developed for each construction site covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with construction site activity from the facility. In addition, the plan shall describe and ensure the implementation of practices which will be used to reduce the pollutants in storm water discharges associated with construction site activity and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

A. **Deadlines for Plan Preparation and Compliance.**

The plan shall:

1. Be completed prior to the start of the construction to be covered under this permit and updated as appropriate;
2. Provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities.

B. **Signature and Plan Review.**

1. The plan shall be signed in accordance with Part VI.G (Signatory Requirements), and be retained on-site at the facility which generates the storm water discharge in accordance with Part VI.E (Duty to Provide Information) of this permit.
2. The permittee shall make plans available upon request from this Agency or a local agency approving sediment and erosion plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system.
3. The Agency may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan requires modifications in order to meet the minimum requirements of this part. Within 7 days from receipt of notification from the Agency, the permittee shall make the required changes to the plan and shall submit to the Agency a written certification that the requested changes have been made. Failure to comply shall terminate authorization under this permit.
4. All storm water pollution prevention plans required under this permit are considered reports that shall be available to the public under Section 308(b) of the CWA. The permittee shall make plans available to members of the public upon request by the public. However, the permittee may claim any portion of a storm water pollution prevention plan as confidential in accordance with 40 CFR Part 2.

C. **Keeping Plans Current.** The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the Waters of the State and which has not otherwise been addressed in the plan or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under paragraph D.2 below, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the storm water pollution prevention plan. Amendments to the plan may be reviewed by the Agency in the same manner as Part IV.B above.

D. **Contents of Plan.** The storm water pollution prevention plan shall include the following items:

1. **Site Description.** Each plan shall, provide a description of the following:
   a. A description of the nature of the construction activity;
   b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g. grubbing, excavation, grading);
   c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities;
   d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;
   e. A site map indicating drainage patterns and approximate slopes anticipated before and after major grading activities, locations where vehicles enter or exit the site and controls to prevent offsite sediment tracking, areas of soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and
   f. The name of the receiving water(s) and the ultimate receiving water(s), and areal extent of wetland acreage at the site.
2. **Controls.** Each plan shall include a description of appropriate controls that will be implemented at the construction site. The plan will clearly describe for each major activity identified in paragraph D.1 above, appropriate controls and the timing during the construction process that the controls will be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization). The description of controls shall address as appropriate the following minimum components:
   a. **Erosion and Sediment Controls.**

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Figure 59-8A
(Continued)

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(i). **Stabilization Practices**. A description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Except as provided in paragraphs (A) and (B) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

(A). Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

(B). Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of site by the 14th day after construction activity temporarily ceased.

(ii). Structural Practices. A description of structural practices to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.

b. **Storm Water Management**. A description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA. This permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are responsible for only the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with industrial activity have been eliminated from the site.

(i). Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The pollution prevention plan shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels.

(ii). Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g. maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

c. **Other Controls**.

(i). **Waste Disposal**. No solid materials, including building materials, shall be discharged to Waters of the State, except as authorized by a Section 404 permit.

(ii). The plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

d. **Approved State or Local Plans**.

(i). The management practices, controls and other provisions contained in the storm water pollution prevention plan must be at least as protective as the requirements contained in Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Facilities which discharge storm water associated with construction site activities must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under this permit, incorporated by reference and are enforceable under this permit even if they are not specifically included in a storm water pollution prevention plan required under this permit. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

(ii) Dischargers seeking alternative permit requirements are not authorized by this permit and shall submit an individual permit application in accordance with 40 CFR 122.26 at the address indicated in Part II.D (Where to Submit) of this permit, along with a description of why requirements in approved local plans or permits should not be applicable as a condition of an NPDES permit.

3. **Maintenance**. A description of procedures to maintain in good and effective operating conditions vegetation, erosion and sediment control measures and other protective measures identified in the site plan.

4. **Inspections**. Qualified personnel (provided by the permittee) shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

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Figure 59-8A
(Continued)

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a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

b. Based on the results of the inspection, the description of potential pollutant sources identified in the plan in accordance with paragraph IV.D.1 (Site Description) of this permit and pollution prevention measures identified in the plan in accordance with paragraph IV.D.2 (Controls) of this permit shall be revised as appropriate as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph b above shall be made and retained as part of the storm water pollution prevention plan for at least three years after the date of inspection. The report shall be signed in accordance with Part VI.G (Signatory Requirements) of this permit.

d. The permittee shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the storm water pollution prevention plan observed during an inspection conducted, including those not required by the Plan. Submission shall be on forms provided by the Agency and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance.

e. All reports of noncompliance shall be signed by a responsible authority as defined in Part VI.G (Signatory Requirements).

f. All reports of noncompliance shall be mailed to the Agency at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

5. **Non-Storm Water Discharges** - Except for flows from fire fighting activities, sources of non-storm water listed in paragraph III.A.2 of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and insure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

E. **Additional requirements for storm water discharge from industrial activities other than construction, including dedicated asphalt plants, and dedicated concrete plants.** - This permit may only authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

1. the industrial source other than construction is located on the same site as the construction activity;

2. storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

3. storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring (including storm water discharges from dedicated asphalt plants (other than asphalt emulsion facilities) and dedicated concrete plants) are in compliance with the terms, including applicable NOI or application requirements, of a different NPDES general permit or individual permit authorizing such discharges.

F. **Contractors.**

1. The storm water pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in paragraph 2 below in accordance with Part VI.G (Signatory Requirements) of this permit. All certifications must be included in the storm water pollution prevention plan except for owners that are acting as contractor.

2. **Certification Statement.** All contractors and subcontractors identified in a storm water pollution prevention plan in accordance with paragraph 1 above shall sign a copy of the following certification statement before conducting any professional service at the site identified in the storm water pollution prevention plan:

"I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR100000) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification."

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part V. RETENTION OF RECORDS

A. The permittee shall retain copies of storm water pollution prevention plans and all reports and notices required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Agency at any time.

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Figure 59-8A
(Continued)

B. The permittee shall retain a copy of the storm water pollution prevention plan required by this permit at the construction site from the date of project initiation to the date of final stabilization.

Part VI. STANDARD PERMIT CONDITIONS

A. **Duty to Comply**.

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Illinois Environmental Protection Act and the CWA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

2. **Penalties for Violations of Permit Conditions**.

a. Criminal

(1). Negligent Violations The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than 1 years, or both. The Environmental Protection Act provides that any person who negligently violates subsection (f) of Section 12 of the Act, any provision of any regulation, standard, or filing requirement under subsection (b) of Section 39 of the Act, or any NPDES permit issued under the Act is subject to a fine not to exceed $10,000 for each day of violation.

(2). Knowing Violations The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 year, or both. The Environmental Protection Act provides that any person who knowingly violates subsection (f) of Section 12 of the Act, any provision of any regulation, standard, or filing requirement under subsection (b) of Section 39 of the Act, or any NPDES permit issued under the Act commits a Class 4 felony, and in addition to any other penalty prescribed by law is subject to a fine not to exceed $25,000 for each day of violation.

(3). Knowing Endangerment The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both.

(4). False Statement The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than 2 years, or by both. If a conviction of a permitee is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the Clean Water Act). The Environmental Protection Act provides that any person who knowingly makes any false statement, representation, or certification in an application form, or form pertaining to a NPDES permit or who knowingly renders inaccurate any monitoring device or record required in connection with any such permit or with any discharge which is subject to the provisions of subsection (f) of Section 12 of the Act commits a Class A misdemeanor, and in addition to any other penalties provided by law is subject to a fine not to exceed $10,000 for each day of violation.

b. Civil Penalties - The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $25,000 per day for each violation. The Environmental Protection Act provides that any person who violates subsection (f) of Section 12 of the Act, any provision of any regulation, standard, or filing requirement under subsection (b) of Section 39 of the Act, or any NPDES permit issued under the Act is subject to a civil penalty not to exceed $50,000 for each violation and an additional civil penalty of not to exceed $10,000 for each day during which the violation continues.

c. Administrative Penalties - The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

(1). Class I penalty Not to exceed $10,000 per violation nor shall the maximum amount exceed $25,000.

(2). Class II penalty Not to exceed $10,000 per day for each day during which the violation continues nor shall the maximum amount exceed $125,000.

B. **Continuation of the Expired General Permit**. This permit expires five years from the date of issuance. An expired general permit continues in force and effect until a new general permit or an individual permit is issued. Only those facilities authorized to discharge under the expiring general permit are covered by the continued permit.

C. **Need to halt or reduce activity not a defense**. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. **Duty to Mitigate**. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. **Duty to Provide Information**. The permittee shall furnish within a reasonable time to the Agency or local agency approving sediment and erosion plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system, any information which is requested to determine compliance with this permit. Upon request, the permittee shall also furnish to the Agency or local agency approving sediment and erosion

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plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system, copies of records required to be kept by this permit.

F. **Other Information**. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Agency, he or she shall promptly submit such facts or information.

G. **Signatory Requirements**. All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Agency or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed.

1. All Notices of Intent shall be signed as follows:

   a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

   c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

2. All reports required by the permit and other information requested by the Agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Agency.

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

   c. **Changes to authorization**. If an authorization under paragraph I.C (Authorization) is no longer accurate because a different individual or position has responsibility for the overall operation of the construction site, a new authorization satisfying the requirements of paragraph I.C must be submitted to the Agency prior to or together with any reports, information, or applications to be signed by an authorized representative.

   d. **Certification**. Any person signing documents under this Part shall make the following certification:

      "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. **Penalties for Falsification of Reports**. Section 309(c)(4) of the Clean Water Act provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or by both. Section 44(j)(4) and (5) of the Environmental Protection Act provides that any person who knowingly makes any false statement, representation, or certification in an application form, or form pertaining to a NPDES permit commits a Class A misdemeanor, and in addition to any other penalties provided by law is subject to a fine not to exceed $10,000 for each day of violation.

I. **Penalties for Falsification of Monitoring Systems**. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by fines and imprisonment described in Section 309 of the CWA. The Environmental Protection Act provides that any person who knowingly renders inaccurate any monitoring device or record required in connection with any NPDES permit or with any discharge which is subject to the provisions of subsection (f) of Section 12 of the Act commits a Class A misdemeanor, and in addition to any other penalties provided by law is subject to a fine not to exceed $10,000 for each day of violation.

J. **Oil and Hazardous Substance Liability**. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the CWA.

K. **Property Rights**. The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

L. **Severability**. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

M. **Transfers**. This permit is not transferable to any person except after notice to the Agency. The Agency may require the discharger to apply for and obtain an individual NPDES permit as stated in Part I.C (Authorization).

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Figure 59-8A
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N. **Requiring an Individual Permit or an Alternative General Permit.**

1. The Agency may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Agency to take action under this paragraph. Where the Agency requires a discharger authorized to discharge under this permit to apply for an individual NPDES permit, the Agency shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the Agency indicated in Part II.D (Where to Submit) of this permit. The Agency may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual NPDES permit application as required by the Agency under this paragraph, then the applicability of this permit to the individual NPDES permittee is automatically terminated at the end of the day specified by the Agency for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii), with reasons supporting the request, to the Agency at the address indicated in Part II.D (Where to Submit) of this permit. The request may be granted by issuance of any individual permit or an alternative general permit if the reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the discharger is authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to a discharger otherwise subject to this permit, or the discharger is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee remains in effect, unless otherwise specified by the Agency.

O. **State/Environmental Laws.** No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

P. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

Q. **Inspection and Entry.** The permittee shall allow the Agency or, in the case of a construction site which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

R. **Permit Actions.** This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

Part VII. REOPENER CLAUSE

A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the discharger may be required to obtain individual permit or an alternative general permit in accordance with Part I.C (Authorization) of this permit or the permit may be modified to include different limitations and/or requirements.

B. Permit modification or revocation will be conducted according to provisions of 35 Ill. Adm. Code, Subtitle C, Chapter I and the provisions of 40 CFR 122.62, 122.63, 122.64 and 124.5.

Part VIII. DEFINITIONS

"Agency" means the Illinois Environmental Protection Agency.

"Best Management Practices" ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Commencement of Construction" - The initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (96-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.)

"Dedicated portable asphalt plant" - A portable asphalt plant that is located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject

NPDES PERMIT NO. ILR10

Figure 59-8A
(Continued)

to the asphalt emulsion effluent limitation guideline at 40 CFR 443.

"Dedicated portable concrete plant" - A portable concrete plant that is located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

"Dedicated sand or gravel operation" - An operation that produces sand and/or gravel for a single construction project.

"Director" means the Director of the Illinois Environmental Protection Agency or an authorized representative.

"Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent stabilization measures (such as the use of riprap, gabions or geotextiles) have been employed.

"Large and Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either:

(i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR Part 122); or

(ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR Part 122); or

(iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"NOI" means notice of intent to be covered by this permit (see Part II of this permit.)

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"Runoff coefficient" means the fraction of total rainfall that will appear at the conveyance as runoff.

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Associated with Industrial Activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. For the categories of industries identified in subparagraphs (i) through (x) of this subsection, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in subparagraph (xi), the term includes only storm water discharges from all areas listed in the previous sentence (except access roads) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally or municipally owned or operated that meet the description of the facilities listed in this paragraph (i)- (xi)) include those facilities designated under 40 CFR 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this paragraph);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28, 29, 311, 32, 33, 3441, 373;

(iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(l)) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator;

(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;

(v) Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of RCRA;

(vi) Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;

(vii) Steam electric power generating facilities, including coal handling sites;

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(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42, 44, and 45 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under subparagraphs (i)-(vii) or (ix)-(xi) of this subsection are associated with industrial activity;

(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR 503;

(x) Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 31 (except 311), 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and which are not otherwise included within categories (i)-(x)).

"Waters" mean all accumulations of water, surface and underground, natural, and artificial, public and private, or parts thereof, which are wholly or partially within, flow through, or border upon the State of Illinois, except that sewers and treatment works are not included except as specially mentioned; provided, that nothing herein contained shall authorize the use of natural or otherwise protected waters as sewers or treatment works except that in-stream aeration under Agency permit is allowable.

ilr10.wpd

NPDES PERMIT NO. ILR10

Figure 59-8A
(Continued)

(shading indicates the areas to be completed)

Illinois Department of Transportation

Storm Water Pollution Prevention Plan-BDE 2342

Route	*FAI-70*	**Marked**	I-70
Section	*12(53,54)R&(12-53)RA-2*	**Project No.**	IM-70-4 ( ) 151
County	Clark		

This plan has been prepared to comply with the provisions of the NPDES Permit Number ILR10, issued by the Illinois Environmental Protection Agency for storm water discharges from Construction Site Activities.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature Date

District Engineer
Title

1. Site Description

   a. The following is a description of the construction activity which is the subject of this plan (use additional pages, as necessary):

The intent of this project is to reconstruct four lanes of FAI Route 70 for the purpose of increasing safety, reducing present and future maintenance costs and to eliminate existing deficiencies.

This work consists of raising and reconstructing EB and WB FAI-70 pavements at a 24' width each with 12' outside shoulders and 6' median shoulders on the existing pavement structure. Areas of pavement removal and replacement on new subgrade at the widths shown above are also incorporated in this project; locations are as shown in the plans.

In addition to the I-70 pavement reconstruction, the improvements include earth excavation and embankment, construction of emergency and contractor access roads at TR-272A, CH 20, TR-340, TR-362 removal and replacement of pavement underdrain systems, pipe culverts, pipe culvert extensions, box culvert extensions, widening and concrete curb and gutter on Illinois Route 1, reconstruction of ramps at the Ill. Route 1 and U.S. Route 40 interchanges, reconstruction of Rest Area ramps and parking areas, reconstruction of Weigh Station ramps, construction of a retaining wall at the rest area, removal of the existing SN 012-0001 and 0002 over an abandoned railroad, removal of the existing Hawk's Creek structures and replacement with SN 012-0069 and 0070, three-span dual structures with PPC I-beams 233.74 ft back to back of abutments, widen and raise the substructure of the Big Creek Structures, SN 012-0004 and 0005, and replace the superstructures with PPC I-Beams, 275.75 ft. back-to-back of abutments, modify the pier shafts, raise the superstructure and replace the decks of the E. Little Creek structures, SN 012-0006 and 0007, raise the superstructure and replace the decks of the Crooked Creek structures, SN 012-0008 and 0009, raise the superstructure and replace the decks of the dual structures over Ill. Route 1, SN 012-0054 and 0055, raise the superstructure and replace the deck of the bridge carrying US Route 40 over I-70, SN 012-0025, raise the superstructure of the bridges carrying CH 20/SN 012-0030, TR 107/SN 012-0041, TR 272A/SN 012-0045 and TR 340/SN 012-0046 over I-70, construction of additional median crossovers guardrail, tree removal, access control fence removal and replacement, and other miscellaneous items pertaining to this work.

b. The following is a description of the intended sequence of major activities which will disturb soils for major portions of the construction site, such as grubbing, excavation and grading (use additional pages, as necessary):

The following construction operations will result in soil being disturbed:

FAI ROUTE 70

Stage 1A – Phase 1
- Improvement of and construction of emergency/contractor access roads at TR 272A, CH 20, TR 340 and TR 362.

Stage 1A – Phase 2
- Raise the structures and roadway approaches at TR 272A, TR 340 and U.S. Route 40. Earthwork as required for raised profile.

Stage 1B
- Reconstruction of Rest Area Parking Lots
- Construction of retaining wall at rest area
- Reconstruction of ramps and Rest Area and Weigh Station
- Reconstruction of FAI-70 EB pavement and mainline bridges, including appurtenances and earthwork at:
  Station 1589+00 to 1617+50
  Station 1629+00 to 1649+00
  Station 102+00 to 556+85
- Construct median crossover at 439+00

Stage 1C – Phase 1
- Raise the structures and roadway approaches at TR 107 and CH20
- Complete reconstruction of FAI-70 EB pavement and mainline bridges, including appurtenances and earthwork

Stage 1C – Phase 2
Resurfacing and earthwork at median crossovers at 1617+00 and 102+00
-

Stage 2A
- Reconstruction of FAI-70 WB pavement and mainline bridges, including appurtenances and earthwork at:
  Station 1589+00 to 1652+50
  Station 102+00 to 556+85
- Resurfacing and earthwork at median crossover at 439+00
- Construct North Half of median crossover at 1596+50

Stage 2B – Phase 1
- Complete reconstruction of FAI-70 WB pavement and mainline bridges, including appurtenances and earthwork from Station 1589+00 to 439+00
- Complete ramp construction at the Rest Area and Weigh Station, including appurtenances and earthwork

Stage 2B – Phase 2
- Complete reconstruction of U.S. Route 40 structure and roadway approaches
- Complete construction of median crossover at Station 1596+50
- Resurfacing and earthwork at median crossovers at Station 1617+00 and 102+00

All Stages
- Embankment for and removal of SN 012-0001 and 012-0002 over and abandoned railroad at Station 109+50
- Tree and brush removal to facilitate removal and replacement of access control fence
- Grading and shaping necessary for raised profile of FAI-70

ILLINOIS ROUTE 1

- Stage 1B--Construct pavement widening and curb and gutter for southbound pavement at Trefz Drive
- Stage 1C--Complete construction of eastbound entrance and exit ramps at the interchange
- Stage 2A—Construct the westbound entrance ramp at the interchange
- Stage 2B--Construct the westbound exit ramp at the interchange

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

U.S. ROUTE 40

Stage 1A – Phase 2
- Raise the northbound half of the structure over FAI-70

Stage 1B – Phase 1
- Reconstruct the northbound lane and roadway approach of the structure over FAI-70 from Station 3834+40 to 3852+65
- Construction of eastbound entrance and exit ramps at the interchange

Stage 1B – Phase 2
- Reconstruct the southbound lane of U.S. Route 40 from Station 2834+40 to 3843+70

Stage 1C
- Raise the southbound half of the structure over FAI-70

Stage 2A – Phase 1
- Reconstruct the southbound lane and roadway approach of the structure over FAI-70 from Station 3843+70 to
- 3863+00
- Begin construction of the westbound entrance and exist ramps at the interchange

Stage 2A – Phase 2
- Reconstruct the northbound lane of U.S. Route 40 from Station 3852+65 to 3863+00
- Complete construction of the westbound entrance and exit ramps at the interchange

c. The total area of the construction site is estimated to be 498 acres.

The total area of the site that it is estimated will be disturbed by excavation, grading or other activities is 318.2 acres.

d. The estimated runoff coefficients of the various areas of the site after construction activities are completed are contained in the project drainage study that is hereby incorporated by reference in this plan. Information describing the soils at the site is contained either in the Soils Report for the project, which is hereby incorporated by reference, or in an attachment to this plan.

e. The design/project report, hydraulic report, or plan documents, hereby incorporated by reference, contain site map(s) indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of major soil disturbance, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water.

f. The names of receiving water(s) and area extent of wetland acreage at the site are in the design/project report or plan documents, which are incorporated by reference as a part of this plan.

2. Controls

This section of the plan addresses the various controls that will be implemented for each of the major construction activities described in 1.b. above. For each measure discussed, the contractor that will be responsible for its implementation is indicated. Each such contractor has signed the required certification on forms which are attached to, and a part of, this plan:

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

a. Erosion and Sediment Controls

(i) Stabilization Practices. Provided below is a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Except as provided in 2.a.(i).(A) and 2.b., stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased on all disturbed portions of the site where construction activity will not occur for a period of 21 or more calendar days.

(A) where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable thereafter.

Description of Stabilization Practices (use additional pages, as necessary):

The intent of the stabilization practices is to provide permanent seeding, erosion control blanket, and mulch on areas disturbed as soon as practicable. Temporary seeding for erosion control will be placed as soon as possible on disturbed areas, and enhanced with Temporary Seeding, until permanent controls can be installed.

Site specific schedules and plans can be found in the plans and special provisions and are incorporated into this plan by reference.

(ii) Structural Practices. Provided below is a description of structural practices that will be implemented, to the degree attainable, to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions and temporary or permanent sediment basins. The installation of these devices may be subject to Section 404 of the Clean Water Act.

Description of Structural Practices (use additional pages, as necessary):

Pipe and inlet protection will be placed at median inlets, median drains, and pipe culverts to protect from sedimentation due to earth excavation and embankment operations. (See Plan Schedule of Quantities, and Plan Sheets)

Perimeter Erosion Barrier shall be used at locations where sediment may escape the right of way.

Sediment traps and Temporary aggregate ditch checks will be placed as indicated in the plans as the proposed ditch profiles are established in each area. Sediment traps and Temporary ditch checks will also be constructed immediately upstream of culverts and culvert extensions.

Site specific schedules for the above-referenced items can be found in the plans and special provisions and are incorporated into this plan by reference.

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

b. Storm Water Management

Provided below is a description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

(i) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff on site; and sequential systems (which combine several practices). The practices selected for implementation were determined on the basis of the technical guidance in Section 10-300 (Design Considerations) in Chapter 10 (Erosion and Sedimentation Control) of the Illinois Department of Transportation Drainage Manual. If practices other than those discussed in Section 10-300 are selected for implementation or if practices are applied to situations different from those covered in Section 10-300, the technical basis for such decisions will be explained below.

(ii) Velocity dissipation devices will be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., maintenance of hydrologic conditions, such as the hydroperiod and hydrodynamics present prior to the initiation of construction activities).

Description of Storm Water Management Controls (use additional pages, as necessary):

Riprap, erosion control blanket, and fiber mat will be placed in ditches at the locations shown in the plans to provide channel stability. Riprap will also be placed at culvert inlets and outlets at the locations shown in the plans to dissipate velocity and provide channel stability. Riprap will be placed in the channel at the Crooked Creek, Hawks Creek, and Big Creek structures for scour protection.

c. Other Controls

(i) Waste Disposal. No solid materials, including building materials, shall be discharged into Waters of the State, except as authorized by a Section 404 permit.

(ii) The provisions of this plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

d. Approved State or Local Plans

The management practices, controls and provisions contained in this plan will be in accordance with IDOT specifications, which are at least as protective as the requirements contained in the Illinois Environmental Protection Agency's Illinois Urban Manual, 1995. Procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials shall be described or incorporated by reference in the space provided below. Requirements specified in sediment and erosion site plans or site permits or storm water management site plans or site permits approved by local officials that are applicable to protecting surface water resources are, upon submittal of an NOI to be authorized to discharge under permit ILR10 incorporated by reference and are enforceable under this permit even if they are not specifically included in the plan.

Description of procedures and requirements specified in applicable sediment and erosion site plans or storm water management plans approved by local officials:

In accordance with the current Clark Co. storm water prevention plan.

3. Maintenance

The following is a description of procedures that will be used to maintain, in good and effective operating conditions, vegetation, erosion and sediment control measures and other protective measures identified in this plan (use additional pages, as necessary):

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

Temporary ditch checks, pipe and inlet protection devices, and perimeter erosion barriers shall have the sediment removed and be replaced as directed by the engineer. Temporary ditch checks, pipe and inlet protection devices and perimeter erosion barriers shall be replaced as directed by the engineer. Sediment traps shall have the sediment cleaned as directed by the engineer. Temporary seeding for erosion control shall be continuously implemented as directed by the engineer.

4. Inspections

Qualified personnel shall inspect disturbed areas of the construction site which have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site. Such inspections shall be conducted at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater or equivalent snowfall.

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of off site sediment tracking.

b. Based on the results of the inspection, the description of potential pollutant sources identified in section 1 above and pollution prevention measures identified in section 2 above shall be revised as appropriate as soon as practicable after such inspection. Any changes to this plan resulting from the required inspections shall be implemented within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of this storm water pollution prevention plan, and actions taken in accordance with section 4.b. shall be made and retained as part of the plan for at least three (3) years after the date of the inspection. The report shall be signed in accordance with Part VI. G of the general permit.

d. If any violation of the provisions of this plan is identified during the conduct of the construction work covered by this plan, the Resident Engineer or Resident Technician shall complete and file an “Incidence of Noncompliance” (ION) report for the identified violation. The Resident Engineer or Resident Technician shall use forms provided by the Illinois Environmental Protection Agency and shall include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact which may have resulted from the noncompliance. All reports of noncompliance shall be signed by a responsible authority in accordance with Part VI. G of the general permit.

The report of noncompliance shall be mailed to the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Attn: Compliance Assurance Section
1021 North Grand East
Post Office Box 19276
Springfield, Illinois 62794-9276

5. Non-Storm Water Discharges

Except for flows from fire fighting activities, sources of non-storm water that is combined with storm water discharges associated with the industrial activity addressed in this plan must be described below. Appropriate pollution prevention measures, as described below, will be implemented for the non-storm water component(s) of the discharge. (Use additional pages as necessary to describe non-storm water discharges and applicable pollution control measures).

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

Illinois Department of Transportation

Contractor Certification Statement

This certification statement is a part of the Storm Water Pollution Prevention Plan for the project described below, in accordance with NPDES Permit No. ILR10, issued by the Illinois Environmental Protection Agency on May 14, 1998.

Project Information:

Route	FAI-70	Marked	I-70
Section	12(53,54)R&(12-53)RA-2	Project No.	IM-70-4( )151
County	Clark		

I certify under penalty of law that I understand the terms of the general National Pollutant Discharge Elimination System (NPDES) permit (ILR 10) that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

Signature _____ Date _____

Title _____

Name of Firm _____

Street Address _____

City _____ State _____

Zip Code _____

Telephone Number _____

STORM WATER POLLUTION PREVENTION PLAN

Figure 59-8B
(Continued)

	US Customary		Metric	
Slope	Height at Center/ Overflow Point of Ditchcheck (ft)	Spacing of Ditchcheck (ft)	Height at Center/ Overflow Point of Ditchcheck (m)	Spacing of Ditchcheck (m)
8%	1.0	13	3.8	300
	1.5	20	5.6	450
	2.0	26	7.5	600
7%	1.0	14	4.3	300
	1.5	21	6.4	450
	2.0	28	8.6	600
6%	1.0	17	5.0	300
	1.5	26	7.5	450
	2.0	34	10.0	600
5%	1.0	20	6.0	300
	1.5	30	9.0	450
	2.0	40	12.0	600
4%	1.0	25	7.5	300
	1.5	38	11.3	450
	2.0	50	15.0	600
3%	1.0	33	10.0	300
	1.5	50	15.0	450
	2.0	66	20.0	600
2%	1.0	50	15.0	300
	1.5	75	22.5	450
	2.0	100	30.0	600
1% & below	1.0	100	30.0	300
	1.5	150	45.0	450
	2.0	200	60.0	600

Percent slope is the amount of elevation or fall in 100 ft (100 m).

If there are highly erodible soils, and/or the ditch will be receiving a large sheet flow of surface water due to the topography of surrounding fields, then multiply the above spacing by 0.9 to reduce the distance between structures.

The above calculations were derived by dividing the height of the ditchcheck by the % slope.

For example: bale (1.5 ft) ÷ slope (0.05) = equals 30 ft spacing

RECOMMENDED SPACING OF DITCH CHECK MATERIALS BASED UPON THE PERCENT OF SLOPE

Figure 59-8C

Maximum Allowable Slope Length for Perimeter Barrier	
Slope Ratio	Slope Length
1V:2H	50 ft (15 m)
1V:3H	75 ft (22.5 m)
1V:4H	125 ft (37.5 m)
1V:5H	175 ft (52.5 m)
Flatter than 1V:5H	200 ft (60 m)

Notes:

1. *Use the steepest slope section where the gradient changes through the drainage area.*

2. *Maximum drainage area for overland flow to a control should not exceed 0.5 acres/100 ft (0.67 ha/100 m) of that control.*

3. *Erosion control fence is used with perimeter barrier as an additional support and is paid for separately.*

MAXIMUM ALLOWABLE SLOPE LENGTH FOR PERIMETER BARRIER
Figure 59-8D

Sediment Basin Matrix			
Drainage Area (acre)	Length (ft)	Width (ft)	Capacity of Sediment Basin (ft^3)
0.5	75	10	1,875
1.0	145	10	3,625
1.5	145	15	5,438
2.0	195	15	7,313

Notes:

1. *All dimensions are based upon an average depth of 2.5 ft and providing, as a minimum, 3,600 ft^3 of storage per acre of runoff.*

2. *Length and width are measured along the bottom of the basin.*

3. *Whenever practical, the maximum average depth of the basin will be 2.5 ft.*

4. *The maximum drainage area allowed per basin is 5 acres. The drainage area is the total (including off-site) area.*

SEDIMENT BASIN MATRIX
(US Customary)

Figure 59-8E

Sediment Basin Matrix			
Drainage Area (ha)	Length (m)	Width (m)	Capacity of Sediment Basin (m^3)
0.2	22.5	3.0	50.6
0.4	43.5	3.0	97.9
0.6	43.5	4.5	146.8
0.8	58.5	4.5	197.4

Notes:

1. *All dimensions are based upon an average depth of 0.75 m and providing, as a minimum, 252 m^3 of storage per hectare of runoff.*

2. *Length and Width are measured along the bottom of the basin.*

3. *Whenever practical, the maximum average depth of the basin will be 0.75 m.*

4. *The maximum drainage area allowed per basin is 2 ha. The drainage area is the total (including off-site) area.*

SEDIMENT BASIN MATRIX
(Metric)

Figure 59-8E